



# Empathy, Perspective-Taking and the Mere Exposure Effect: Understanding Adolescent Attitudes About Sexual Minorities and Reducing Prejudice Against Sexual Minority Youth

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Empathy, Perspective-Taking and the Mere Exposure Effect:  
Understanding Adolescent Attitudes About Sexual Minorities and  
Reducing Prejudice Against Sexual Minority Youth

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of the Graduate School of Education of Harvard University  
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## **Abstract**

Lesbian, gay, bisexual and questioning (LGBQ) youth face considerable discrimination and peer victimization, which has been associated with a number of negative health and educational outcomes. Few studies have been conducted to understand peer attitudes and how they vary based on demographic characteristics, including sex, race and religion, and no research has been conducted examining differences in attitudes between immigrant and native-born populations. This present study analyzes the attitudes about homosexuality and gender nonconformity held by high school students (N = 957) at a racially and ethnically diverse high school in the northeast, as measured by a brief survey. The author examines how tolerance of homosexuality differs based on sex, race, immigrant identity, religious affiliation and intergroup contact with LGB people. Analyses of the results indicate that there are large differences in attitudes among demographic subgroups of students.

Following examination of these baseline attitudes, the author conducted an experiment assessing the impact of two interventions intended to increase tolerance of homosexuality and gender nonconformity. The first intervention consisted of an offer to participate in a one-on-one discussion about LGB people, including questions intended to increase empathy and engage students in perspective-taking as a means of prejudice reduction. The second intervention was based upon the mere exposure effect: the phenomenon that repeated exposures to a stimulus may enhance preference for that stimulus. This intervention consisted of multiple exposures over the course of an academic year to a questionnaire assessing students' attitudes about homosexuality and gender nonconformity.

Analyses of the results of both experiments indicate that neither intervention had statistically significant impacts on prejudice reduction: the views of students who were initially accepting of LGBQ people remained positive at the conclusion of the study, while those students with pre-existing anti-LGBQ bias did not become more tolerant as a result of participation in the study, and in fact, less tolerant students appeared to experience a slight increase in prejudice. Further inquiry is needed to understand the reasons why these interventions had the opposite of the desired effect for intolerant students, in order to craft more appropriate prejudice-reduction strategies for students with pre-existing anti-LGBQ bias.

## Introduction

Lesbian, gay, bisexual and questioning<sup>1</sup> (LGBQ)<sup>2</sup> youth are at greater risk of negative health and educational outcomes than their heterosexual counterparts due to sexual orientation-based discrimination (Almeida, Johnson, Corliss, Molnar & Azrael, 2009; Birkett, Espelage & Koenig, 2009; Hatzenbuehler, 2011). LGBQ youth of color face additional challenges, including marginalization within the communities to which they nominally belong: (predominantly white) LGB communities and (predominantly straight) communities of color. The discrimination they experience based on both race and sexual orientation places them at greater risk for negative school and health outcomes than their white and/or heterosexual counterparts (Austin, Nelson, Birkett, Calzo & Everett, 2013; Russell, Seif & Truong, 2001). The impacts of this marginalization may be particularly severe for first- and second-generation immigrant youth, as well as young people from religious backgrounds, as these communities may be particularly intolerant of sexual minority identity (Adamczyk & Pitt, 2009; Calzo & Ward, 2009; Harker, 2001; Holland, Matthews & Schott, 2013). To better understand the school environments in which sexual minority youth may experience victimization, in my first article, I explore the attitudes that youth at a

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<sup>1</sup> By “questioning,” I refer to those students who are unsure of their sexual orientation.

<sup>2</sup> This discussion is limited to LGBQ youth because of the dearth of research on transgender youth. However, the existing research suggests that they are at even greater risk than LGBQ youth (Grant et al., 2011; Kosciw, Greytak, Palmer & Boesen, 2014).

racially and ethnically diverse high school have about sexual minority identity, and examine the extent to which these attitudes vary across demographic subgroups. In addition, given the victimization that LGBTQ youth experience, interventions must be fashioned to address intolerance and hopefully improve the school experiences of these youth. I identify two avenues as particularly fruitful for prejudice reduction: engaging youth in empathy development and perspective-taking, and using the mere exposure effect, which I address in my second and third articles.

### **Empathy, Perspective-Taking and Prejudice Reduction**

One possible means of reducing prejudice towards LGBTQ youth is by developing interventions aimed at increasing empathy and perspective-taking. Batson et al. (1997) have identified a three-step model for how empathy may reduce prejudice toward a stigmatized group. This process begins with adopting the perspective of an individual within that group, leading to increased empathy for this individual. As a result of this increased empathy, one tends to develop an increased value for the individual's welfare, which leads to more positive feelings for and beliefs about the individual's group. Empathy is expected to improve attitudes only if one empathizes in response to a need that appears to relate to group membership, e.g., discrimination against LGBTQ people on account of their sexual orientation. Interventions based on perspective-taking have been shown to be broadly applicable as a means of improving attitudes towards members of an out-group (Galinsky, Ku & Wang, 2008; Shih, Wang, Bucher & Stotzer, 2009).



Taken as a whole, this research suggests that engaging youth in activities motivating empathy and perspective-taking about LGBTQ people may be one way to reduce prejudice.

### **Mere Exposure Effect and Prejudice Reduction**

A significant body of research indicates that repeated exposure to a stimulus may be sufficient to increase a research subject's liking for the thing to which she has been exposed (Zajonc, 2001). According to Zajonc, "repetitions of an experience in and of themselves are capable of producing a diffuse affective state" and "can also generate positive affect in response to additional stimuli that are similar in form or substance" (2001, p. 226). Mere exposure has previously been used in efforts to improve attitudes about groups of people. As Smith, Dijksterhuis and Chaiken (2007) observed, "even interactionless exposures to members of a particular group should improve attitudes toward that group" (p. 50). Thus, in a number of studies, subjects have been exposed to photographic images of faces of people of a particular race or races, often to assess whether exposure to these images increased participants' liking for members of that group (Campbell, Neuert, Friesen & McKeen, 2010; Crisp, Hutter & Young, 2009; Zebrowitz, White & Wieneke, 2008). In each case, participants were able to generalize their increased preference across people within the group to which they had been exposed.

While these studies suggest that repeated exposure to a perceived out-group should increase subsequent liking by members of the in-group, these effects may

hinge on initial attitudes, and repeated exposure has the potential to strengthen both negative and positive pre-existing attitudes (Smith et al., 2007, p. 61; Crisp, Hutter & Young, 2009). Thus, repeated exposures to survey items referencing LGBTQ people may be an effective means of reducing prejudice, although these positive effects may not extend to those with strong initial anti-LGBTQ bias. The mere exposure effect has not previously been used in the context of sexual minorities, nor has its use been studied through the use of a questionnaire.

### **Research Questions**

In the present study, I sought to answer three questions:

What are the attitudes of students at a racially diverse northeastern high school about homosexuality and gender nonconformity, and to what extent do these attitudes differ across subgroups of students, e.g., English language learners versus native English speakers?

Does the opportunity to engage in one-on-one discussions about sexual minorities cause high school students to become more tolerant of homosexuality and gender non-conformity, and do the effects of such an intervention differ across subgroups of students?

Does the repeated exposure to a questionnaire assessing attitudes about homosexuality and gender non-conformity cause high school students to become more tolerant of sexual minorities, and do the effects of such an intervention differ across subgroups of students?

My research was particularly driven by my interest in the extent to which these interventions may play a role in reducing prejudice among straight youth of color, who the literature and my previous research suggest may be less tolerant of sexual minorities than their white counterparts. Given the heightened risks LGBTQ youth of color face in schools, interventions that reduce anti-LGBTQ bias may be a means of improving their school experiences.

### **Research Design and Methodology**

In this study, I addressed my first research question by administering and analyzing results from a baseline questionnaire on tolerance of homosexuality and gender nonconformity. My second and third research questions were answered using quantitative data obtained through an experiment, as described below.

### **Sample and Randomization**

The school at which my study took place is significantly more diverse than the population of high school students across the state (Massachusetts DESE). The diversity of this school, and in particular the large number of non-white youth, made it an ideal location for a study examining the attitudes of racial subgroups toward LGBTQ youth. Within the high school, students are assigned to smaller learning communities, each of which has approximately 400 students, “in a process that balances special education status, gender, zip code, bilingual status, and socioeconomic status” (X Public Schools). Students remain in their assigned learning communities for their entire four years at the school. Within each learning

community, students are randomly assigned by grade level into homerooms of approximately 20 students.

Assignment to treatment took advantage of student random assignment to homeroom. In the first step, from each of the four learning communities, three classrooms at each grade level were selected for participation, for a total of 48 homerooms, representing 12 homerooms in each grade and 12 homerooms in each learning community. In the second step, homerooms were randomly assigned to one of three groups: the control group or one of the two treatment groups. Assignment took place at the grade level and learning community level, *i.e.*, equal numbers of homerooms in each grade and learning community were assigned to one of the three groups. Thus, there were approximately 320 students in each of the three groups.

## **Materials**

**Questionnaire.** The primary instrument used in connection with this study was a brief questionnaire that I developed to assess students' attitudes about homosexuality and gender non-conformity. In developing scales to assess the underlying construct I sought to measure, *i.e.*, tolerance for homosexuality and gender non-conformity, I largely followed Gehlbach and Brinkworth's (2011) framework. I first conducted a literature review to identify the types of questions used when assessing attitudes about homosexuality. Existing instruments have primarily been designed to assess adult attitudes, and were not easily adaptable for

high school students. Thus, I drafted new questions, then engaged in open-ended interviews, expert review and cognitive pre-testing with those questions.<sup>3</sup>

Prior to commencement of the study, the scale underwent three rounds of pilot testing. With respect to validity, both principal components analysis and exploratory factor analysis conducted with the pilot test data ( $N=154$ ) support the existence of a single construct (with one factor and one principal component). With respect to reliability, the scale has a Cronbach's  $\alpha$  of .89, which is quite good. A copy of the questionnaire is attached hereto as Appendix A.

**One-on-one discussion protocol.** The discussion protocol delves further into students' attitudes about sexual minorities, including questions that require students to engage in perspective-taking, *e.g.*, imagining what the lives of LGB people may be like. I developed the protocol after spending a number of months of observation at the site. A copy of the discussion protocol is attached hereto as Appendix B.

## **Experimental Design**

After first assessing baseline student attitudes about homosexuality and gender non-conformity through the use of the questionnaire, I proceeded to engage

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<sup>3</sup> Open-ended interviews revealed that respondents (1) were more concerned with homosexual behavior than identity; (2) were more comfortable interacting with lesbians than gay males; and (3) conflated gender nonconformity and homosexuality. During cognitive pre-testing, I focused on the items that received the highest relevance ratings, but the lowest clarity ratings during expert evaluations, and made changes to some items to elicit potential discomfort, *e.g.*, shifting from being on a team sport with a gay or lesbian to changing in a locker room with that person.

in an experiment to evaluate the effectiveness of two proposed interventions aimed at increasing tolerance for sexual minorities.

**Intervention one.** The first intervention, which was administered to students in Treatment Group A, consisted of one-on-one discussions with students regarding their attitudes about sexual minorities. The intervention took place in an interview-like format, with participants having opportunities during the structured interview and at the conclusion of the discussion to ask any questions. Participants in Treatment Group A volunteered to participate in the discussion-based intervention, which took place after school or during lunchtime. In order to encourage participation, students were offered \$10 gift cards as a token incentive. Even with these incentives, only 85 students – slightly more than 25% of the students in the treatment group – participated in the intervention.

**Intervention two.** The second intervention, which was administered to Treatment Group B, consisted of re-administering the questionnaire approximately every eight weeks during homeroom. Research does not appear to have been previously undertaken to assess whether multiple exposures to a questionnaire have been associated with changed attitudes about the subject matter of the questionnaire. However, as discussed above, “mere exposure research suggests that even interactionless exposures to members of a particular group should improve attitudes toward that group” (Smith, Dijksterhuis & Chaiken, 2007, p. 50). I hypothesized that repeated exposure to the questionnaire would result in increased tolerance and acceptance for sexual minorities.

**Post-experiment assessment measures.** At the end of the academic year, I administered a questionnaire to the control group and both treatment groups in order to assess differences among the three groups, and between their responses in fall 2013 and spring 2014. In addition to the items included in the initial questionnaire, a number of new items were included in the questionnaire administered at the conclusion of the experiment. First, students were asked whether they had had additional exposures to LGB-related subjects, e.g., books or television shows with LGB characters, discussions with family or friends about LGB people, participation in school-based LGB-related programming, etc. This inquiry was included to measure the extent to which changes in attitudes of students in both the control and treatment groups might be attributable to exposure to LGB content other than the intervention. In addition, a supplemental question designed to serve as an additional behavioral measure assessing changes in tolerance was included in the final questionnaire, i.e., I allowed students to elect whether a donation would be given to a generic school charity or to the school's gay/straight alliance as a token of my appreciation for their participation in the study. Including this additional measure as well as students' self-report was intended to strengthen the results of the research (Paluck & Green, 2009, p. 352).

## **Data Analysis**

### **Measures.**

***Tolerance of homosexuality and gender nonconformity.*** I created continuous composite variables measuring students' self-reported tolerance for

homosexuality and gender nonconformity at the beginning and end of the experiment, with more positive values representing higher levels of tolerance.

***Question predictors.*** I created dummy variables to indicate whether a student was assigned to Treatment Group A or B. I also created dummy variables to indicate whether a student assigned to Treatment Group A participated in the discussion (0=no, 1=yes). As discussed below, this variable was included for my Treatment on the Treated analysis, for which I used instrumental variable estimation.

***Other covariates.*** To describe students' demographic characteristics, I created variables for student characteristics including, but not limited to, sex, age, race, ESL enrollment, parents' region of origin<sup>4</sup>, religion, and sexual orientation. I also created a dummy variable to indicate whether a student has lesbian, gay and/or bisexual friends (0=no, 1=yes). Those individuals with contact with members of minority groups, including LGB people, exhibit lower levels of prejudice toward those groups (Collier, Sandfort & Bos, 2012; Heinze & Horne, 2009; Liang & Alimo, 2005; Overby & Barth, 2002). I also created a continuous variable reflecting the number of LGB friends a respondent has, as individuals with many LGB friends may display less prejudice than those with fewer LGB friends (Poteat et al., 2013).

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<sup>4</sup> This variable was included, along with ESL enrollment, to capture immigrants from Anglophone countries as well as second-generation immigrants. Prior research at the site suggests that first- and second-generation immigrants view homosexuality less favorably than their peers with U.S.-born parents (Mundy-Shephard, 2012a).



**Analysis.** To answer my first research question, I used multi-level modeling, with students nested within homerooms, to investigate the relationship between students' baseline tolerance and their demographic characteristics. Based on prior research, I anticipated that male students (Gastic, 2012; Horn & Heinze, 2009; Mundy-Shephard, 2012a), black students, low-SES students and English language learners will exhibit less baseline tolerance (Mundy-Shephard, 2012a), and that the more LGB friends a student has, the more tolerant that student will be (Mundy-Shephard, 2012a; Poteat et al., 2013).

For my second and third research questions, I used multi-level modeling with classroom fixed effects to investigate the relationship between assignment to one of the interventions and students' tolerance for homosexuality and gender non-conformity. For both interventions, I fitted a series of models to ascertain whether assignment to either of the treatment groups increased students' tolerance for homosexuality and gender non-conformity, and examined whether the impact of either of the interventions differed by the students' baseline tolerance and demographic characteristics, with a particular focus on demographic variables of interest based on my findings from my examination of students' baseline attitudes at the beginning of the study.

As discussed above, participation in the discussion-based intervention was significantly less than 100%. Therefore, in addition to analyzing the effect of assignment to Treatment Group A regardless of whether students accepted the offer to participate in the discussion-based intervention, I conducted a treatment on

the treated analysis. In conducting this analysis, I used instrumental variable estimation. Specifically, to estimate the effect of participating in the discussion-based intervention, I used the two-stage least-squares approach to obtain an instrumental variable estimate of the relationship, using assignment to Treatment Group A as my instrument (Murnane & Willett, 2011). While treatment on the treated analysis lacks all of the elements of a true experiment, it provides a more accurate understanding of the effectiveness of participating in the intervention than the analysis outlined above.

### **Findings**

Article One, “Understanding Adolescent Attitudes About Homosexuality and Gender Nonconformity,” reveals significant demographic differences in students’ tolerance and acceptance of homosexuality and gender nonconformity based on sex, race, immigrant identity, and religion, with students identifying as female, white, multiracial, non-religious, and/or as having U.S.-born parents displaying higher tolerance, and students identifying as male, Asian, black, Latino, religious, and/or has having foreign-born parents displaying lower levels of tolerance. Intergroup contact was associated with higher levels of tolerance among all subgroups, although it was particularly significant for those students from the least tolerant demographic subgroups.

Article Two, “The Role of Empathy in Reducing Prejudice Against Sexual Minority Youth,” considers the impact of the offer to participate in a discussion about homosexuality and gender nonconformity, as well as participation in such a

discussion, on high school students' attitudes about these topics. Although the intervention was intended to reduce prejudice by means of empathy inducement and perspective-taking, it did not appear to have a statistically significant impact on students' attitudes at the conclusion of the experiment. Students who identified as male, Asian, black, or Latino became slightly less tolerant at the conclusion of the experiment, although intergroup contact with LGB people resulted in lower levels of prejudice for male students. Notably, exposure to LGB-related subject matter other than the intervention was associated with higher levels of tolerance.

Finally, in Article Three, "The Mere Exposure Effect and Its Impact on Attitudes About Homosexuality and Gender Nonconformity," I explore the impact of the mere exposure effect on students' attitudes about homosexuality and gender nonconformity. My study suggests that multiple exposures to a questionnaire about homosexuality and gender nonconformity were not a successful means of reducing anti-LGBQ prejudice. Assignment to the treatment had a small but statistically significant negative impact on tolerance, with male students showing lower levels of tolerance at the end of the experiment. As with the first intervention, having a number of LGB friends and having exposure to LGB-themed subject matter were both associated with greater tolerance.

Each of these papers contributes to different literatures and theoretical frames, although all three inform our understanding about adolescents' perceptions of sexual minority identity and appropriate vehicles for creating accepting, inclusive environments for sexual minority youth of all backgrounds. While

neither of the interventions had the intended effect, they give insight into those groups of students most in need of tolerance-building interventions, and suggest future avenues for exploration, including the use of LGB-inclusive curricular materials, as well as opportunities for meaningful intergroup contact with LGB people as a means of promoting tolerance and acceptance.

## **Article 1. Understanding Adolescent Attitudes About Homosexuality and Gender Nonconformity**

### **Abstract**

Lesbian, gay, bisexual and questioning (LGBQ) youth face considerable discrimination and peer victimization, which has been associated with a number of negative health and educational outcomes. Despite the significant role that peer attitudes play in the experiences of LGBQ youth, few studies have been conducted to understand these attitudes and how they vary based on demographic characteristics, including sex, race and religion, and no research has been conducted examining differences in attitudes between immigrant and native-born populations. This present study analyzes the attitudes held by high school students (N = 957) at a racially and ethnically diverse high school in the northeast about homosexuality and gender nonconformity, as measured by a brief survey. The author examines how tolerance and acceptance of homosexuality differs based on sex, race, immigrant identity and religious affiliation. The author also examines the relationship between intergroup contact with LGBQ people, as measured by having LGB friends, and students' acceptance of homosexuality and gender nonconformity, and how this acceptance may vary by sex, race, immigrant identity and religion. Analyses of the results indicate that there are large differences in attitudes among demographic subgroups of students, and that these differences are even larger between those students with LGB friends and those without. The study suggests that further inquiry is needed to understand the reasons behind these large

differences in levels of acceptance of homosexuality and gender nonconformity, and the impact of these attitudes on LGBTQ youth from demographic groups with lower overall tolerance levels.

Lesbian, gay, bisexual and questioning (LGBQ) youth are at greater risk of negative health and educational outcomes than their heterosexual counterparts due to discrimination. In some instances, these outcomes may be even worse for youth of color, who may encounter both racial hostility and homophobia, and may risk losing the friendship and support of their co-ethnic peers due to the disclosure of their sexual orientation. The intersection of racial minority identity and immigrant identity may place certain LGBQ youth at even greater risk, due to lower levels of tolerance in some immigrant communities. In addition, because many immigrants may have closer familial relationships and connections with their countries of origin, as well as higher rates of religiosity than their non-immigrant counterparts, the risk of the disclosure of LGBQ identity and concurrent concerns about rejection may be particularly high for sexual minority youth in these communities.

In this study, I will address the ways that adolescent attitudes about homosexuality and gender nonconformity vary by demographic subgroup, focusing on sex, race, immigrant identity and religion. I will also address the relationship between friendship with LGB people and attitudes about homosexuality and gender nonconformity, both generally and within demographic subgroups of interest. In doing so, one of my goals is to shed light on the potential for increased vulnerability of certain LGBQ youth populations, potentially due to their concurrent membership in particular groups that may display lower levels of acceptance for homosexuality and gender nonconformity. I also seek to explore the relationship between higher levels of acceptance of homosexuality and gender

nonconformity and friendship with LGB people, including the ways in which this may vary among different groups of youth.

### **Literature Review**

The victimization that LGBQ youth encounter places them at heightened risk of depression, suicidal ideation, suicide attempts and self-harm, engagement in sexual risk behaviors and substance abuse, obesity and eating disorders (Almeida, Johnson, Corliss, Molnar & Azrael, 2009; Austin, Nelson, Birkett, Calzo & Everett, 2013; Bostwick, Meyer, Aranda, Russell, Hughes, Birkett & Mustanski, 2014; Hatzenbuehler, 2011; Rosario, Corliss, Everett, Russell, Buchting & Birkett, 2014). This discrimination is also associated with higher rates of school truancy and dropout, lower grade point averages, diminished college aspirations and lower college matriculation rates (Birkett, Espelage & Koenig, 2009; Kosciw, Greytak, Bartkiewicz, Boesen & Palmer, 2012; Robinson & Espelage, 2011; Russell, Seif & Truong, 2001). Gender nonconforming youth face discrimination based on their real or perceived sexual orientation, as adolescents frequently conflate gender nonconformity with homosexuality (Collier, Bos & Sandfort, 2012; Patrick, Bell, Huang, Lazarakis & Edwards, 2013).

Peer attitudes have a significant impact on the experiences of sexual minority youth, with those students who are in accepting environments reporting more positive school experiences than their counterparts in less accepting environments (Elze, 2003). While previous studies have examined differences in attitudes based on single axes of identity, e.g., sex, race and socioeconomic status,



few studies have examined the intersection of these identities, and none have considered the association between being an immigrant or a child of immigrants and adolescents' attitudes about homosexuality. Prior research suggests that LGBQ youth of color may fare worse than their white counterparts on some measures, as they may encounter racial hostility from whites both within and outside the LGB community, as well as homophobia both within their racial in-group and from the broader community (Calzo & Ward, 2009; Daley, Solomon, Newman & Mishna, 2007; Homma & Saewyc, 2007; McCready, 2004; Narváez, Meyer, Kertzner, Ouellete & Gordon, 2009; Thoma & Huebner, 2013).

All sexual minority youth, particularly youth of color and those from immigrant families, may also encounter religious-based intolerance from peers and family, which may be particularly difficult for LGBQ youth raised in certain religious traditions (Gottfried & Polikoff, 2012; Page, Lindahl & Malik, 2013; Schulte & Battle, 2004). Given the myriad risks to which LGBQ youth may be exposed, it would appear that LGBQ children of immigrants may be at the highest risk of negative outcomes due to close fictive kinship ties within immigrant communities and the consequent risk of rejection by co-ethnic peers, higher rates of religiosity among many immigrant groups, and a greater sense of needing to conform to parental expectations, including the adoption of parental beliefs which may be rooted in their countries of origin (Calzo & Ward, 2009; Harker, 2001; Kumashiro, 2001; Narváez, et al., 2009). One of the contributions of the current

study is its focus on immigrant identity as an additional factor to be considered in examining adolescent attitudes about homosexuality and gender nonconformity.

### **Adolescent Attitudes About Homosexuality and Gender Nonconformity**

Before turning to this aspect of identity, I will address prior research that has examined attitudes about homosexuality based on sex, race and religion, as these identities will serve to inform the current study.

**Sex-based differences in attitudes.** Available research suggests that large differences in attitudes about homosexuality exist based on sex. Holland, Matthews and Schott (2013) suggest that these differences may be due to heterosexual males' concern about their ability to meet societal expectations of masculinity. In their study, undergraduates at a mid-sized public university were surveyed about their attitudes towards LGBT people and behavior, with female respondents displaying greater tolerance than their male counterparts. In Poteat, Espelage & Koenig's (2009) study of adolescents' tolerance and acceptance of gay and lesbian peers, as measured by willingness to remain friends and/or to attend school with gays and lesbians, female students were found to be more tolerant than their male counterparts. Likewise, in Heinze and Horn's study of adolescents' attitudes toward their gay and lesbian peers, female students reported higher levels of contact, "were less likely to judge homosexuality as wrong, were more likely to express comfort interacting with [lesbian and gay] peers, and were less likely to evaluate exclusion and teasing as acceptable compared to boys" (2009, p. 948).

Adolescent attitudes about gender nonconformity, i.e., “tolerance for individuals’ non-traditional gender expression, as indicated by their appearance, behavior, and/or romantic partnerships” (Collier, Bos & Sandfort, 2012, pp. 899-900), also differ widely by sex. Previous studies suggest that adolescents – particularly boys – are less tolerant of male gender nonconformity than of female gender nonconformity (Collier, Bos & Sandfort, 2012; Heinze & Horn, 2014; Pascoe, 2007), which may be attributable to the heavy policing of masculinity in which boys engage beginning in early adolescence, if not before (Heinze & Horn, 2014; Mandel & Shakeshaft, 2000; Pascoe, 2007).

**Race-based differences in attitudes.** Differences in attitudes about homosexuality have also been observed based on race in a number of studies. As Calzo and Ward (2009) noted in their study of the impact of parents, peers and the media on adolescent attitudes about homosexuality, “some Asian groups believe that [homosexuality] is an attribute of Western culture or a ‘White disease’” (p. 1104). As a result, Asians may feel forced to choose between privileging their Asian identity and repressing their gay one, or embracing a sexual minority identity while confronting racism inherent within mainstream (i.e., white) gay and lesbian culture (Chung & Katayama, 1998). Calzo and Ward (2009) also observed that studies of black populations suggest that the “church may promote a heterosexist stance that is in opposition to gender nonconformity and homosexuality” (p. 1104), a finding mirrored by Schulte and Battle (2004) in their examination of the role of the black church in predicting attitudes about

homosexuality. In addition, “homophobia may be culturally entrenched in Latino populations,” reflecting the significance of “machismo” in many Latin cultures (Calzo & Ward, 2009, p. 1104), and those who transgress may view themselves as betraying their cultures (Daley, Solomon, Newman & Mishna, 2007; Narváez, et al., 2009). While various studies have identified cultural explanations for lower levels of tolerance in communities of color, researchers have also generally found that whites’ tolerance of homosexuality is higher than that of non-whites (Calzo & Ward, 2009; Gastic, 2012; Holland, Matthews & Schott, 2013), although in some instances these differences disappear after controlling for socioeconomic status and religiosity (Negy & Eisenman, 2005; Schulte & Battle, 2004).

**Religion-based differences in attitudes.** Religiosity has been identified “as one of the strongest predictors of attitudes about homosexuality” (Adamczyk & Pitt, 2009, p. 338). Studies suggest that active religious involvement generally, and being Protestant or Muslim specifically, are associated with lower levels of tolerance, while being non-religious, Catholic or Anglican has been associated with more positive attitudes towards gay and lesbian people (Adamczyk & Pitt, 2009; Holland, Matthews & Schott, 2013; Schulte & Battle, 2004). Prior research indicates that people of color, and particularly recent immigrants, tend to exhibit higher levels of religiosity than their white and/or non-immigrant counterparts (Calzo & Ward, 2009; Harker, 2001; Schulte & Battle, 2004).

**Differences in attitudes based on parental perceptions of homosexuality based on race/ethnicity and immigrant identity.** “Perceptions of parental sexual

minority attitudes may predict adolescents' homophobic behavior" (Poteat, DiGiovanni & Scheer, 2012, p. 353). In addition, as Calzo & Ward (2009) found, the quantity and type of information parents convey about homosexuality may vary based on race/ethnicity. With respect to the type of information conveyed, white students in Calzo & Ward's (2009) study were most likely to have parents communicate that "homosexuality is a question of orientation, not morality," while black students were least likely to receive the message from parents that "homosexuality is not perverse and unnatural" (p. 1109). Asian students received little information about homosexuality from their parents, attributed in part to a general taboo around discussing issues of sexuality in many Asian communities. Thus, to the extent that parents may come from cultures in which homosexuality is particularly vilified, e.g., countries where it is subject to criminal penalties, young people may receive negative messages from parents and adopt some of these parental attitudes.

Given that the children of immigrants may be more likely to receive homophobic messages from parents than the children of U.S.-born parents, it is significant that children of immigrants may be more closely monitored by their parents than their U.S.-born counterparts, and may face strong familial pressure to maintain the culture and values of their countries of origin (Awokoya & Clark, 2008; Harker, 2001). Thus, not only are they more likely to receive negative messages about sexual minorities than their counterparts with U.S.-born parents, but they may be more likely to give greater credence to the messages they receive.

**Fictive kinship.** LGBTQ youth of color are less likely to be out in high school than their white counterparts (Almeida et al., 2009), with may be attributable in part to their reluctance to risk their connection with their racial/ethnic fictive kin. Fictive kinship is a “collective identity” shared by members of a racial group, and may be used to exclude those who exhibit “behavior, attitudes and activities that are perceived as being at variance with those thought to be appropriate and group-specific” (Fordham, 1988, p. 56). For LGBTQ students of color, maintenance of fictive kinship ties is of critical importance, given that their status as the racialized “other” may deprive them of full membership in predominantly white LGBTQ peer groups. Thus, some LGBTQ youth of color may feel they are forced to either repress the development of their (non-heterosexual) identities, or jeopardize their membership in their (heterosexual) racial/ethnic communities and the access to the fictive kinship networks associated with this membership. Given the particular emphasis placed on fictive kinship ties within immigrant communities (Ebaugh & Curry, 2000), immigrant LGBTQ youth – particularly immigrant LGBTQ youth of color – may be at an even higher risk of the loss of fictive kin if they disclose their sexual orientations in communities that are not accepting of homosexuality and gender nonconformity.

**Contact hypothesis.** The contact hypothesis posits that those with more intergroup contact with an out-group – in this case lesbians, gays and bisexuals – will be more accepting than those without such contacts. In multiple studies,

intergroup contact has been associated with more positive attitudes about homosexuality and gender nonconformity (Heinze & Horn, 2009; Holland, Matthews & Schott, 2013; Poteat, Giovanni & Scheer, 2012). The quality of the contact is significant: while adolescents with gay and lesbian friends are generally more tolerant, and are less likely to engage in homophobic behaviors (Poteat, DiGiovanni & Scheer, 2012), contact itself does not result in prejudice reduction. As Heinze and Horn (2009) found in their study of the relationship between intergroup contact and high school students' attitudes about their gay and lesbian peers, the "type of contact (intimate vs. casual) is a critical component of prejudice reduction," i.e., while having lesbian and gay friends may result in higher tolerance, awareness of gay and lesbian individuals absent friendship may result in discomfort about homosexuality and an "increase [in] intergroup hostility and violence" (Heinze & Horn, 2009, p. 947). Questions remain as to the direction in which the contact hypothesis operates, i.e., does having LGB friends increase tolerance, or are those who are already tolerant more likely to befriend LGB people? Holland, Matthews & Schott (2013) cite the work of Finlay and Walther (2003) for the notion that "the association between contact and intolerance may be two-way, or in the opposite direction from the way it is usually interpreted – that is, greater acceptance may lead to greater interpersonal contact...More intimate relationships (e.g. having gay or lesbian friends and peers) are more likely to produce a positive result than are secondary relationships" (p. 579). Finally, a positive association has been found between tolerance and higher numbers of LGB

friends (Poteat, DiGiovanni & Scheer, 2012), i.e., those with a large number of LGB friends may be more tolerant than those with only one or two.

### **Hypotheses**

In the present study, I used a questionnaire to assess adolescents' tolerance and acceptance of homosexuality and gender nonconformity in order to answer the following questions: what are the attitudes of students at a diverse high school in the northeast about homosexuality and gender nonconformity, and to what extent do these attitudes differ across subgroups of students? Based on pilot testing previously performed at the school in which my research was conducted and existing research on adolescent tolerance and acceptance of sexual minorities, I hypothesized that females, white students, native English speakers with U.S.-born parents, and non-religious students would report higher degrees of tolerance, and that males, students of color (particularly black students), children of immigrants (particularly those enrolled in ESL), and religious students would report lower levels of tolerance. I also hypothesized that students with LGB friends would report higher levels of tolerance than students without LGB friends, and that higher numbers of LGB friends would be positively associated with tolerance. My primary goal in exploring these hypotheses was both to better understand the differences in students' attitudes about homosexuality and gender nonconformity, and to consider the impact that lower levels of tolerance among certain demographic subgroups of students might have on LGBQ students who are members of those subgroups.



## Methods

### Participants

Participants in my study were 957 students ranging in age from 13 to 21 ( $M=15.69$ ,  $SD=1.28$ ) in 48 homerooms in grades 9 through 12 at a northeastern high school, representing approximately 60% of the students at school in which the study was conducted. Students at the high school are purposefully assigned to one of four 400-student learning communities within the school “in a process that balances special education status, gender, zip code, bilingual status, and socioeconomic status” (X Public Schools). Within each learning community, students are randomly assigned into homerooms of approximately 20 students, where they remain for their entire four years at the school. Selection for participation in the study was as follows: first, parents and guardians of all students received a parental opt-out letter, allowing them the opportunity to decline their students’ participation in the study. If a parent exercised this option, that student’s homeroom was removed from the study. For the remaining homerooms, from each of the four learning communities, three homerooms at each grade level were randomly selected for participation, for a total of 48 homerooms. Assignment took place at both the grade level and learning community level, *i.e.*, equal numbers of homerooms in each grade and learning community were selected for participation in the study.

Male students were slightly overrepresented in the sample (51.7%). With respect to race, 34.4% of the students identified as white, 25.2 % as black, 11.5%

as Asian and 9.8 % as Latino, with 16.3% of students identifying as more than one race, including those students who selected Latino and one or more additional races.<sup>5</sup> Students' parents came from a number of regions around the world: while a majority of students (56.2%) had at least one parent born in the United States or Canada, 19.5% had parents from the Caribbean, 12.8% from Latin America, 10.7% from Asia, 10.3% from Europe and 9.1% from Africa.<sup>6</sup> ESL enrollees accounted for 18.2% of the sample. Regarding religion, 37.1% of students identified as non-Catholic Christian (including both Protestant and Orthodox Christian), 11.1% as Catholic, 8.0% Jewish, 8.0% Muslim and 3.9% Buddhist, while 39.6% of students identified as atheist, agnostic or non-religious, including some students who also claimed a religious affiliation. Finally, more than 2/3 of the students (69.6%) reported having at least one lesbian, gay or bisexual (LGB) friend. See Table 1 for more detailed demographic information about the students in the sample.

## **Procedures**

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<sup>5</sup> This is significantly more racially diverse than the population of U.S. school children as a whole, which as of 2012 was 68.0% white, 14.6% black, 4.3% Asian, 1% Native American, .2% Native Hawaiian and Pacific Islander, and 5.3% biracial or multiracial, with 23.2% of students identifying as Latino of any race (<http://nces.ed.gov/surveys/sdds/framework/tables.aspx?ds=acsProfile&y=2012>).

<sup>2</sup> This represents significantly more geographic diversity than in the U.S. generally. While information was unavailable regarding the parental origin of children in U.S. schools, only 3.9% of students in U.S. schools were foreign born (<http://nces.ed.gov/surveys/sdds/framework/tables.aspx?ds=acsProfile&y=2012>).

In order to answer my research question, I developed and administered a questionnaire measuring tolerance of homosexuality and gender nonconformity and analyzed the results. The questionnaire included an 11-item scale assessing tolerance of both homosexuality generally, and male and female homosexuality and gender nonconformity specifically. The study was conducted during homeroom, at which time, together with two research assistants, I administered the survey. Students completed a paper and pencil version of the questionnaire anonymously during homeroom. A waiver of active parental consent was employed through a parental opt-out letter, and student assent was obtained. Both the participating school district and the Harvard University IRB approved the study.

## **Measures**

**Demographic characteristics.** All demographic characteristics, as well as other measures, were based on students' self-report. The measurement of these characteristics is described only for those measures that were of interest in the current study.

**Sex.** Respondents were asked to report their sex, with response options coded as 1=male and 0=female.

**Race.** I constructed dummy variables for race including the following five categories: (1) Asian, (2) black, (3) Latino, (4) white and (5) multiracial, the last of which includes both multiracial Latino and multiracial non-Latino respondents.

*Parents' region of origin and language.* To assess whether students were immigrants or children of immigrants, I asked three questions related to parents' country of birth, language spoken at home, and ESL enrollment. For the first, students were asked to identify the country or countries in which their parents/legal guardians were born. I collapsed these into the following categories: (1) United States/Canada, (2) Africa, (3) Asia, (4) the Caribbean, (5) Europe and (6) Latin America.<sup>7</sup> Students with parents or guardians from Spanish-speaking countries or territories in the Caribbean, i.e., Cuba, the Dominican Republic and Puerto Rico, were coded as both Caribbean and Latin American.

Students were also asked "Do people in your home speak a language other than English?" For those who responded in the affirmative, I asked them to describe the frequency with which this language was spoken, with response options ranging from rarely to always. I then created a dummy variable representing whether students were from primarily English-speaking households. Students who spoke a language other than English sometimes, most of the time or always were coded as 0, while students who rarely or never spoke a language other than English at home were coded as 1. Finally, I asked students if they had ever been enrolled in English as a Second Language classes. The response options were coded as 1=ESL and 0=no ESL.

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<sup>7</sup> Many students had parents from more than one country. For example, of the 496 students with U.S.-born parents, 100 had a parent born outside the U.S.

***Religion.*** In order to assess students' religious affiliation, students were asked "What most closely describes your religious beliefs?" and were allowed to select as many response items as they deemed appropriate from the following options: (1) agnostic, (2) atheist, (3) Buddhist, (4) Christian, (5) Evangelical Christian, (6) Hindu, (7) Jewish, (8) Muslim, (9) Protestant Christian, (10) Roman Catholic, and (11) no religion. Students could also write in if their religious affiliation was not provided. Christian, Evangelical Christian and Protestant Christian – as well as write-ins that fell within one of these categories, e.g., Pentecostal and Orthodox Christian, were coded as non-Catholic Christian. Agnostic, atheist and no religion were collapsed into the category no religion. These students, together with those who selected both a religious affiliation and agnostic, atheist, or no religion were coded as "non-religious," although they were also included in the analysis of the individual religions they selected. Because of the low number of Hindu respondents, they were not included in the final analysis.

***Intergroup contact.*** I included a dummy variable to indicate whether a student reported having LGB friends, and a continuous variable reflecting the number of LGB friends reported, with response options ranging from "one" to "four or more."

***Tolerance of homosexuality and gender nonconformity.*** I created a continuous composite variable measuring students' self-reported tolerance for homosexuality and gender nonconformity, with more positive values representing higher levels of tolerance. Because I used both unipolar and bipolar response

scales, I converted the scores to a 0-1 scale, where 0 represents completely intolerant and 1 represents completely tolerant. Seven of the items had unipolar response scales, e.g. “How bothered would you be if you discovered that a gay or lesbian classmate had a crush on you?” with the response options “extremely bothered,” “quite bothered,” “somewhat bothered,” “slightly bothered” and “not bothered at all.” Four of the items had bipolar response scales, e.g., “How comfortable or uncomfortable would you be if a male friend told you he was gay?” with the response options “totally comfortable,” “somewhat comfortable,” “slightly comfortable,” “neither comfortable nor uncomfortable,” “slightly uncomfortable,” “somewhat uncomfortable,” and “totally uncomfortable.” One item was a two part branching question, with the first question assessing students’ comfort level changing in the locker room generally, and the follow-up item assessing whether the student would be more comfortable or uncomfortable if a gay or lesbian classmate was present. This item was assessed slightly differently than the others, with responses of “much more comfortable” to “neither more nor less comfortable or uncomfortable” being compressed to a single score of 1, and responses denoting degrees of discomfort being spread between .67 and 0.

Prior to commencement of the study, the scale underwent three rounds of pilot testing. With respect to validity, both principal components analysis and exploratory factor analysis conducted support the existence of a single construct (with one factor and one principal component). With respect to reliability, the scale has a Cronbach’s  $\alpha$  of .86, which is quite good.

**Missing data.** Some students elected not to answer all of the items that formed a part of the tolerance scale. Although a failure to include demographic data was not a basis for exclusion from the analysis, only those students who completed more than 1/3 of the items, i.e., at least 5 of the 12 items that formed the tolerance scale, were included in the analysis, as I determined that a true estimate of their tolerance could not be made without a sufficient number of responses provided, particularly because of the mix between items assessing tolerance of homosexuality and those assessing tolerance of gender nonconformity, as well as specific items relating only to male or female homosexuality or gender nonconformity. Five students were excluded from the analysis due to failure to respond to a sufficient number of tolerance items.

## **Analysis**

In order to answer my research question, I conducted multilevel modeling using STATA software, with students nested within the 48 homerooms participating in the study, to investigate the relationship between students' tolerance and their demographic characteristics. I elected to use multilevel modeling due to the assignment of students to homerooms for four years, as I hypothesized that this might result in differences at the homeroom as well as individual levels. To evaluate each of my hypotheses, I regressed the outcome tolerance on the demographic variables of interest. I evaluated the hypotheses using 95% confidence intervals, as opposed to *p*-values, and report standardized  $\beta$ s to provide an estimate of effect size (Cumming, 2014).

## Results and Discussion

My study revealed large differences in tolerance and acceptance of homosexuality and gender nonconformity based on sex, race, parents' country of origin and religion. It also showed that intergroup contact played a major role in predicting students' tolerance and acceptance of homosexuality and gender nonconformity, and that this intergroup contact was of particular significance for certain demographic subgroups.

**Sex and race-based differences in tolerance.** My results with respect to sex and race were generally consistent with my *a priori* hypotheses. Female students were considerably more tolerant ( $\beta=0.81$ ,  $SE=0.01$ , CI: 0.79, 0.83) than their male counterparts ( $\beta=0.70$ ,  $SE=0.01$ , CI: 0.68, 0.72).

White students were also more tolerant ( $\beta=0.84$ ,  $SE=0.01$ , CI: 0.81, 0.86) than students of color ( $\beta=0.71$ ,  $SE=0.01$ , CI: 0.70, 0.73), although this was only the case for students who identified as black ( $\beta=0.65$ ,  $SE=0.01$ , CI: 0.63, 0.68), Latino ( $\beta=0.72$ ,  $SE=0.02$ , CI: 0.67, 0.76) or Asian ( $\beta=0.73$ ,  $SE=0.01$ , CI: 0.70, 0.76). One interesting finding was that multiracial students reported tolerance levels comparable to those of their white counterparts ( $\beta=0.80$ ,  $SE=0.02$ , CI: 0.77, 0.84). Given the amount of variability within this multiracial designation, *i.e.*, any student who checked off two or more races was classified as multiracial, regardless of the races selected, further exploration may be appropriate. It must also be noted that relative to the sample overall, as well as the other racial categories, there was a sex imbalance for multiracial students, with far more



female students identifying as multiracial than male students: 89 versus 62. While the potential reasons female students in this sample were more likely to identify as multiracial than their male counterparts are beyond the scope of this paper, given the overall higher levels of tolerance among female students relative to their male counterparts, the higher levels of tolerance of multiracial students overall may in part be attributed to this sex imbalance within the subgroup. As I discuss below, while the race-based differences in tolerance I found are consistent with prior research, more inquiry must be made into how these attitudes are also informed by immigrant identity and religion.

**Parents' region of origin and language-based differences in tolerance.**

As anticipated, students who were immigrants or the children of immigrants were significantly less tolerant ( $\beta=0.70$ ,  $SE=0.01$ , CI: 0.68, 0.72) than their peers with U.S.-born parents ( $\beta=0.82$ ,  $SE=0.01$ , CI: 0.80, 0.83), although these differences varied greatly by region.<sup>8</sup> Students with parents from Africa ( $\beta= 0.67$ ,  $SE=0.02$ , CI: 0.63, 0.72) and the Caribbean ( $\beta= 0.67$ ,  $SE=0.01$ , CI: 0.64, 0.70) showed the largest differences in tolerance relative to their peers with U.S.-born parents.<sup>9</sup> See Table 2 for more detail on these and other demographic differences in tolerance

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<sup>8</sup> As noted above, approximately 20% of the students with U.S.-born parents also had one parent born outside of the United States. The difference in tolerance between those students with only one U.S.-born parent and two is negligible:  $\beta=0.82$ ,  $SE=0.01$ , CI: 0.80, 0.84 for students with two U.S.-born parents versus  $\beta=0.81$ ,  $SE=0.02$ , CI: 0.78, 0.84 for those with one.

<sup>9</sup> The level of tolerance of students with parents from the Caribbean is lower when students who were also coded as Latin American are removed:  $\beta=0.62$ ,  $SE=0.03$ , CI: 0.57, 0.68

levels. Consistent with my hypothesis, differences in tolerance were also found between those students who primarily spoke English at home ( $\beta=0.79$ ,  $SE=0.01$ , CI: 0.77, 0.81) and those who spoke a language other than English at home at least some of the time ( $\beta=0.71$ ,  $SE=0.01$ , CI: 0.69, 0.73). The above findings would suggest that in general, parents' home cultures may influence students' attitudes about their LGB peers, and that students living in households where the parents' home language is frequently spoken may be more connected with those cultures and their values – including their attitudes about homosexuality and gender nonconformity – than students in English-speaking households.

Even more predictive of lower tolerance than being a child of immigrants was being first generation immigrant: in the sample, ESL-enrolled students were much less tolerant ( $\beta=0.63$ ,  $SE=0.01$ , CI: 0.60, 0.66) than their non-English language learner peers ( $\beta=0.79$ ,  $SE=0.01$ , CI: 0.77, 0.80). For these ESL-enrolled students, it is unclear whether their relative intolerance reflects more closeness to their home cultures and fictive kin communities – as I speculate is the case for the children of immigrants generally – or the lack of social integration that these students may encounter in schools. Further research is needed to understand the reasons that students who are first or second generation immigrants tend to be less accepting of homosexuality and gender nonconformity, and the extent to which this may be due to a lack of acculturation in their school, stronger ties to their parents' home cultures and ethnic fictive kin, or some combination of the two.

**Religion-based differences in tolerance.** My hypothesis based on religious differences yielded mixed results. While non-religious students were more tolerant ( $\beta=0.82$ ,  $SE=0.01$ , CI: 0.80, 0.84) than their religious counterparts ( $\beta=0.72$ ,  $SE=0.01$ , CI: 0.70, 0.74), not all religious students were less tolerant than their nonreligious peers. Differences in tolerance were only considerable for Muslim ( $\beta=0.62$ ,  $SE=0.02$ , CI: 0.57, 0.66), non-Catholic Christian ( $\beta=0.71$ ,  $SE=0.01$ , CI: 0.69, 0.74) and Catholic ( $\beta=0.76$ ,  $SE=0.02$ , CI: 0.72, 0.79) students. In contrast, Jewish and Buddhist students displayed levels of tolerance comparable to or higher than their nonreligious counterparts. While these findings are consistent with the literature, further research is needed to examine some of the reasons that religiosity may be associated with lower levels of tolerance for some religions as opposed to others. For example, within the sample, non-Catholic Christians were much less tolerant than their Catholic counterparts, despite the Catholic Church's historical position on homosexuality. Further studies may include items on the frequency of religious service attendance and other items to better understand the salience of students' religious beliefs and the relationship between their religiosity and their acceptance of homosexuality and gender nonconformity.

**Differences in tolerance based on intergroup contact.** As anticipated, intergroup contact was positively associated with higher levels of tolerance. Students with LGB friends were much more tolerant ( $\beta=0.81$ ,  $SE=0.01$ , CI: 0.80, 0.83) of homosexuality and gender nonconformity than their counterparts without

LGB friends ( $\beta=0.62$ ,  $SE=0.01$ , CI: 0.60, 0.65). As I will address below, for a number of these groups, the differences in tolerance levels were present between those with and without LGB friends were particularly pronounced.

### **Exploratory Analyses**

#### **Differences in tolerance based on race and parents' region of origin.**

While not a part of my *a priori* hypotheses, two separate sets of findings – extremely low levels of tolerance among black students generally and children of African and Caribbean immigrants specifically – suggested that an additional inquiry into the differences between the attitudes of black students with U.S.-born parents versus their peers with parents born in the Caribbean and Africa. Results indicate that there are considerable differences in the attitudes of U.S. born black students ( $\beta=0.72$ ,  $SE=0.03$ , CI: 0.66, 0.78) and Caribbean black students ( $\beta=0.63$ ,  $SE=0.02$ , CI: 0.58, 0.67), with their counterparts with parents born in Africa ( $\beta=0.66$ ,  $SE=0.03$ , CI: 0.60, 0.71) falling between the two. See Figure 1.

Prior research addressing differences in attitudes about homosexuality has focused primarily on race, without taking into account the differences between American blacks and their Caribbean and African counterparts. This study suggests that rather than looking solely at race, considering parents' country or region of origin may be required in order to capture these differences in attitudes, particularly in areas with large immigrant populations.

**Relationship between intergroup contact and demographic characteristics.** Given the large differences in tolerance levels between students

with LGB friends and those without, I considered whether the impact of the contact hypothesis might vary among different demographic subgroups of students. I hypothesized that there would be larger differences based on the contact hypothesis for those groups that exhibited lower levels of tolerance overall, i.e., male students, students of color, immigrant students/children of immigrants and religious students. Results largely confirmed these hypotheses, with some exceptions.

***Intergroup contact and sex.*** Contrary to my expectations, while male students with LGB friends were more tolerant ( $\beta=0.76$ ,  $SE=0.01$ , CI: 0.73, 0.78) than those without ( $\beta=0.62$ ,  $SE=0.01$ , CI: 0.59, 0.65), differences in tolerance were considerably larger for female students with LGB friends ( $\beta= 0.85$ ,  $SE= 0.01$ , CI: 0.84, 0.87) compared to their female counterparts without LGB friends ( $\beta=0.65$ ,  $SE=0.02$ , CI: 0.61, 0.68). This may suggest a ceiling effect on adolescent male tolerance among the students I studied, i.e., for male students, having LGB friends was not associated with the high levels of tolerance observed in female students with LGB friends, potentially due to a certain level of discomfort with which even relatively tolerant male students perceived homosexuality and gender nonconformity. Given that the tolerance levels between male and female students without LGB friends were comparable, two conclusions may be drawn: (1) there may be a degree of unwillingness on the part of intolerant students to be friends with LGB people that is consistent regardless of sex, or (2) friendship with LGB people may result in much higher levels of acceptance among female students

relative to their male counterparts. Qualitative inquiry is needed to explore this issue further.

***Intergroup contact and race.*** For students of color, the results were largely – although not entirely -- consistent with my hypothesis. Black students had vastly different levels of tolerance based on whether they were friends with LGB people ( $\beta=0.75$ ,  $SE=0.02$ , CI: 0.72, 0.79 versus  $\beta=0.52$ ,  $SE=0.02$ , CI: 0.48, 0.56); although differences were also large for Asian students ( $\beta=0.78$ ,  $SE=0.02$ , CI: 0.73, 0.82 versus  $\beta=0.64$ ,  $SE=0.03$ , CI: 0.57, 0.70) and multiracial students ( $\beta=0.84$ ,  $SE=0.02$ , CI: 0.80, .087 versus  $\beta=0.68$ ,  $SE=0.30$ , CI: 0.62, 0.74). Much smaller differences in attitudes based on intergroup contact were found among Latino and white students. For more detail, see Figure 2. Further inquiry is needed to better understand the reasons that the impact of intergroup contact appears to vary so much among racial groups.

***Intergroup contact and parents' region of origin and language.***

Immigrants and children of immigrants showed large differences in tolerance between those with and without LGB friends. For students whose parents were born outside of the U.S., having LGB friends was associated with large differences in tolerance ( $\beta=0.77$ ,  $SE=0.01$ , CI: 0.75, 0.80 versus  $\beta=0.59$ ,  $SE=0.02$ , CI: 0.56, 0.62), particularly for students with parents from the Caribbean ( $\beta=0.75$ ,  $SE=0.02$ , CI: 0.72, 0.79 versus  $\beta=0.51$ ,  $SE=0.03$ , CI: 0.46, 0.56); Latin America ( $\beta=0.77$ ,  $SE=0.02$ , CI: 0.73, 0.81 versus  $\beta=0.69$ ,  $SE=0.03$ , CI: 0.62, 0.75); and Africa ( $\beta=0.74$ ,  $SE=0.03$ , CI: 0.67, 0.80 versus  $\beta=0.59$ ,  $SE=0.04$ , CI: 0.52, 0.66).

This indicates that within the sample, for children of U.S.-born parents as well as those with parents from Asia and Europe, intergroup contact plays less of a role in predicting students' tolerance of homosexuality and gender nonconformity. In addition, students who spoke a language other than English at home and had LGB friends were considerably more tolerant ( $\beta=0.79$ ,  $SE=0.01$ , CI: 0.77, 0.81) than their counterparts without LGB friends ( $\beta=0.58$ ,  $SE=0.02$ , CI: 0.55, 0.61). Findings were similar for ESL-enrolled students with LGB friends displayed much higher levels of tolerance ( $\beta=0.72$ ,  $SE=0.02$ , CI: 0.67, 0.76) than those without ( $\beta=0.54$ ,  $SE=0.02$ , CI: 0.49, 0.58), although it should be noted that especially for ESL-enrolled students, even friendship with LGB people was not associated with the high levels of tolerance found among many other subgroups. See Figure 3 for more detail.

These findings suggest that further inquiry may be needed to ascertain the extent to which first and second generation immigrant students are being fully acculturated into the school, in order to assess whether they are being provided with opportunities to interact with a wide array of their peers, including openly LGB students. This would appear to be particularly important for ESL-enrolled students, who may be the least likely to have opportunities to interact with their U.S.-born peers.

***Intergroup contact and religion.*** Finally, my hypotheses concerning the relationship between intergroup contact and religious affiliation were also largely confirmed by my analysis. Differences between nonreligious students with LGB

friends ( $\beta=0.85$ ,  $SE=0.01$ , CI: 0.83, 0.87) versus those without ( $\beta=0.75$ ,  $SE=0.02$ , CI: 0.72, 0.78) were much smaller than the differences for religious students ( $\beta=0.79$ ,  $SE=0.01$ , CI: 0.77, 0.81 versus  $\beta=0.58$ ,  $SE=0.02$ , CI: 0.55, 0.61). These differences were largest for Muslim, non-Catholic Christian, and Catholic students, all of whom reported much higher levels of tolerance due to friendship with LGB people. Differences were negligible for Buddhist and Jewish students. For more detail, see Figure 4. Particularly given the significantly lower levels of tolerance of religious students overall, regardless of their friendship with LGB people – particularly for those students identifying themselves as Muslim or Christian – the much higher levels of tolerance reported by those students with LGB friends underscores the important connection between intergroup contact and tolerance.

Despite the confirmation of the majority of my *a priori* and exploratory hypotheses, not all of the variables of interest remain in my final model. I attribute this in part to the fact that many of the variables of interest were strongly correlated with other variables, rendering their presence in the final model unnecessary. This is particularly true of those variables addressing parents' region of origin, which I attribute in part to the fact that such a high percentage of the children of immigrants at the school were also students of color. Thus being Asian was very strongly positively correlated with having parents from Asia,  $r(874) = .73$ ,  $p < .0001$  and being Latino was very strongly positively correlated with having parents from Latin America,  $r(873) = .75$ ,  $p < .0001$ . There were also strong positive



correlations between being black and having parents from Africa  $r(873)=.45$ ,  $p<.0001$  or the Caribbean  $r(874)=.42$ ,  $p<.0001$ , and with been white and having parents from the U.S. or Canada  $r(875)=.47$ ,  $p<.0001$ .

In most instances, being a student of color was negatively correlated with having parents from the United States or Canada. For black students, there was a moderate negative correlation,  $r(875)=-.33$ ,  $p<.0001$ , while there was a weak negative correlation for Asian students  $r(875)=-.27$ ,  $p<.0001$  and Latino students  $r(874) = -.28$ ,  $p<.0001$ . Only for multiracial students was there a weak positive correlation with having parents born in the United States or Canada,  $r(875)=.24$ ,  $p<.0001$ . Finally, speaking English at home was strongly positively correlated with having parents from the United States or Canada,  $r(885) = .652$ ,  $p<.0001$  and moderately negatively correlated with being enrolled in ESL,  $r(927) = -.345$ ,  $p<.0001$ . See Table 4 for a detailed inter-item correlation table.

### **Final Model**

As I discuss above, my goal in conducting this research was to assess adolescents' tolerance and acceptance of homosexuality and gender nonconformity, and to assess the extent to which this tolerance varied based on students' demographic characteristics and students' friendships with LGB people, *i.e.*, the importance of intergroup contact. To this end, I explored these relationship, using multilevel modeling to account for the fact that students were nested in homerooms, in which they remain for their entire time at the school. The final fitted model includes the following variables of interest: sex, race, ESL

enrollment, religion, sexual orientation, a dummy variable to represent having LGB friends as well as a continuous variable to represent the number of LGB friends, having parents from the Caribbean, and three interaction terms: the first examining the interaction between being black and having LGB friends, the latter two the interaction between being non-Catholic Christian or Muslim and having LGB friends. See Table 3. These interaction terms were selected because intergroup contact was especially important to black, non-Catholic Christian and Muslim students relative to the sample overall, *i.e.*, these students – and Muslim students in particular – were much more likely to be more tolerant of homosexuality and gender nonconformity if they had LGB friends, while non-black, non-religious, Buddhist, Catholic and Jewish students' tolerance levels were less likely to differ as significantly based on their friendship with LGB people.

Formally, the model for examining adolescent tolerance and acceptance of homosexuality and gender nonconformity with all of the individual-level measures is

$$TOLERANCE_{ij} = \beta_0 + \beta_1(\text{male}) + \beta_{2-5}(\text{race}) + \beta_6(\text{ESL enrollment}) + \beta_{7-12}(\text{religious affiliation}) + \beta_{13}(\text{heterosexual}) + \beta_{14}(\text{having LGB friends}) + \beta_{15}(\text{number of LGB friends}) + \beta_{16}(\text{Caribbean}) + \beta_{17}(\text{black} \times \text{LGBfriends}) + \beta_{18}(\text{Christian} \times \text{LGBfriends}) + \beta_{19}(\text{Muslim} \times \text{LGBfriends}) + \varepsilon_{ij} + \nu_{i..}$$

The  $i$  indexes individuals and  $j$  indexes classroom-level influences.

Thus, at the school where I conducted my research, students' sex, race, enrollment in ESL (as a proxy for first generation immigrant identity), Caribbean

ancestry, religion and sexual orientation were all predictive of their tolerance of homosexuality and gender nonconformity, with female students, white students, native-English speakers, non-Caribbean students, non-religious students displaying higher levels of tolerance than their male, non-white, ESL-enrolled, Caribbean and religious counterparts. In addition, having LGB friends was associated with higher levels of tolerance, and the more LGB friends a student had, the more tolerant they were likely to be, with particularly large differences based on intergroup contact found among black, non-Catholic Christian and Muslim students.

### **Implications for School Professionals**

My findings are important for school professionals because they suggest that certain groups of students may be in far greater need of intervention than others in order to create more tolerant and accepting school environments for sexual minority youth. This is particularly important in the case of children of immigrants: while recognizing the importance of these students' cultural identities, school professionals must ensure that they are fully integrated into their school environments, and that this integration includes respect for difference. My findings also underscore the important role that intergroup contact has on the attitudes adolescents have about their lesbian, gay, bisexual and gender nonconforming peers. By creating educational environments in which heterosexual students have the opportunity to befriend their LGB peers, school professionals may be more likely to find higher levels of tolerance and acceptance. These findings also

suggest that sexual minority youth who belong to certain groups may be at particular risk for peer victimization and rejection, and that preventive steps must be taken to minimize this risk.

### **Strengths, Limitations and Future Directions**

The primary strength of this study is my use of a large, diverse sample. Although the school is not nationally representative, and certainly not representative of the majority of US schools, which are far less diverse in terms of race and ethnicity, the presence of such diversity offers insights into the attitudes of a broad swath of students. The sample was overall fairly tolerant, and may not be reflective of attitudes held in other geographic regions, or even in less diverse educational settings. Future research should include replication of this study in other regions of the country and in schools with different demographic configurations to determine if the primary findings remain consistent in other contexts.

In addition to replication of the study in other geographic areas, several questions would likely benefit from qualitative inquiry, including reasons why students from certain demographic groups possess particularly low levels of tolerance. Although interviewing I conducted at the site suggests that parent attitudes play a large part in informing students' tolerance of homosexuality and gender nonconformity, research is needed to more fully understand this, as well as to understand the reasons why some students choose to become friends with LGB people despite receiving negative messages from parents. Further investigation is

also necessary to understand the relationship between first and second generation immigrant identity and tolerance, as well as whether parent attitudes have more of an impact on immigrant youth than on their U.S.-born counterparts. Finally, future research should address how to counteract negative messages adolescents receive – at home and from peers – about homosexuality and gender nonconformity, and should take into account how such tolerance-building interventions may vary in effectiveness based on the demographic characteristics of the adolescents participating.

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## Appendix

Table 1. Descriptive Statistics for Weighted Analytical Student Sample

<b>Variable</b>	<b>% (SE)</b>
<b>Sex</b>	
Female	48.3 (2.9)
Male	51.7 (2.9)
<b>Race</b>	
Asian	11.5 (1.1)
Black	25.2 (1.9)
Latino	9.8 (0.9)
White	34.4 (2.1)
Multiracial	16.3 (1.2)
<b>Parents' Country of Origin</b>	
US/Canada	56.2 (2.5)
Africa	9.1 (1.0)
Asia	10.7 (1.1)
Caribbean	19.5 (1.7)
Europe	10.3 (1.0)
Latin America	12.8 (1.1)
<b>Socioeconomic Status</b>	
High SES	57.0 (2.2)
Low SES	43.0 (2.2)
<b>English Ability</b>	
ELL	18.2 (1.9)
Non-ELL	81.8 (1.9)
<b>Sexual Orientation</b>	
Straight	87.1 (1.6)
Gay or Lesbian	1.4 (0.4)
Bisexual	4.1 (1.0)
Questioning/Unsure	5.0 (0.7)
Other Sexual Orientation	2.6 (0.5)
<b>Friendships</b>	
Friends with One or More LGB People	69.6 (2.6)
No LGB Friends	30.4 (2.6)
<b>Religious Affiliation</b>	
Non-Religious	39.6 (2.2)
Buddhist	3.9 (0.6)
Catholic	11.1 (1.0)
Christian (non-Catholic)	37.1 (1.9)
Jewish	8.4 (0.9)
Muslim	8.0 (1.1)
Unweighted N=957	

Table 2. Composite Mean Tolerance of Key Demographic Variables: **Mean**, (Standard Errors), and [95% Confidence Intervals].

Demographic Variable	Mean Composite Tolerance
Male	<b>.70</b> (.01) [.68, .72]
Female	<b>.81</b> (.01) [.79, .83]
Asian	<b>.73</b> (.01) [.70, .76]
Black	<b>.65</b> (.01) [.63, .68]
Latino	<b>.72</b> (.02) [.67, .76]
Multiracial	<b>.80</b> (.02) [.77, .84]
White	<b>.84</b> (.01) [.81, .86]
U.S./Canada	<b>.82</b> (.01) [.80, .83]
Africa	<b>.67</b> (.02) [.63, .72]
Asia	<b>.77</b> (.02) [.73, .81]
Caribbean	<b>.67</b> (.01) [.64, .70]
Europe	<b>.82</b> (.02) [.78, .86]
Latin America	<b>.75</b> (.02) [.71, .78]
English Spoken at Home	<b>.79</b> (.01) [.77, .81]
Language Other than English Spoken at Home	<b>.71</b> (.01) [.69, .73]
ESL	<b>.63</b> (.01) [.60, .66]
Non-ESL	<b>.79</b> (.01) [.77, .80]
Religious	<b>.72</b> (.01) [.70, .74]
Non-Religious	<b>.82</b> (.01) [.80, .84]
Buddhist	<b>.80</b> (.03) [.73, .86]
Catholic	<b>.76</b> (.02) [.72, .79]
Christian (Non-Catholic)	<b>.71</b> (.01) [.69, .74]
Jewish	<b>.84</b> (.02) [.79, .88]
Muslim	<b>.62</b> (.02) [.57, .66]
Has LGB Friends	<b>.81</b> (.01) [.80, .83]
Has No LGB Friends	<b>.62</b> (.01) [.60, .65]

Table 3. Taxonomy of Models

		Model A	Model B	Model C	Model D	Model E	Model F	Model G	Model H	Model I
	Intercept	0.751*** (0.008)	0.812*** (0.010)	0.883*** (0.012)	0.891*** (0.011)	0.908*** (0.013)	0.964*** (0.019)	0.849*** (0.022)	0.869*** (0.022)	0.917*** (0.023)
	Male		-0.114*** (0.012)	-0.108*** (0.012)	-0.110*** (0.011)	-0.112*** (0.011)	-0.114*** (0.011)	-0.083*** (0.011)	-0.083*** (0.011)	-0.085*** (0.011)
	Asian			-0.108*** (0.020)	-0.067** (0.020)	-0.058** (0.021)	-0.071*** (0.020)	-0.063** (0.020)	-0.051** (0.020)	-0.055** (0.019)
	Black			-0.172*** (0.015)	-0.137*** (0.015)	-0.111*** (0.017)	-0.114*** (0.016)	-0.103*** (0.016)	-0.076*** (0.018)	-0.128*** (0.025)
	Latino			-0.107*** (0.021)	-0.066** (0.021)	-0.059** (0.021)	-0.065** (0.021)	-0.073*** (0.020)	-0.041~ (0.021)	-0.042* (0.020)
	Multiracial			-0.038* (0.017)	-0.038* (0.017)	-0.030~ (0.017)	-0.030~ (0.017)	-0.036* (0.016)	-0.027~ (0.016)	-0.028~ (0.016)
	ESL				-0.118*** (0.016)	-0.104*** (0.016)	-0.102*** (0.016)	-0.081*** (0.016)	-0.071*** (0.016)	-0.060*** (0.016)
	Buddhist					0.026 (0.029)	0.019 (0.029)	0.006 (0.027)	0.005 (0.028)	0.009 (0.027)
	Catholic					-0.026 (0.019)	-0.033~ (0.019)	-0.034~ (0.018)	-0.035~ (0.018)	-0.037* (0.018)
	Christian					-0.040** (0.013)	-0.037** (0.013)	-0.035** (0.013)	-0.032* (0.012)	-0.076** (0.023)
	Jewish					0.002 (0.021)	-0.004 (0.021)	-0.012 (0.020)	-0.014 (0.020)	-0.009 (0.023)
	Muslim					-0.122*** (0.022)	-0.132*** (0.022)	-0.110*** (0.021)	-0.120*** (0.021)	-0.220*** (0.032)
	Straight						-0.057** (0.017)	-0.042* (0.016)	-0.057** (0.017)	-0.060*** (0.016)
	LGB Friends							0.056** (0.020)	0.054** (0.020)	-0.009 (0.023)
	Number of LGB Friends							0.020*** (0.006)	0.018*** (0.006)	0.020*** (0.005)
	Caribbean								-0.058*** (0.016)	-0.061*** (0.016)
	Black × LGB Friends									0.084** (0.028)
	Christian × LGB Friends									0.052* (0.026)
	Muslim × LGB Friends									0.156*** (.041)
Residuals										
Level 1	Person-Level	0.200 (0.005)	0.190 (0.004)	0.176 (0.004)	0.170 (0.004)	0.163 (0.004)	0.158 (0.004)	0.151 (0.004)	0.147 (.004)	0.144 (0.004)
Level 2	Room-Level	0.029 (0.009)	0.029 (0.009)	0.029 (0.008)	0.021 (0.010)	0.027 (0.009)	0.032 (0.008)	0.028 (0.008)	0.026 (0.008)	0.027 (0.008)

~ <0.1; \* <0.05; \*\* <0.01; \*\*\* <0.001

Table 4. Correlations of Key Demographic Variables

	Asian	Black	Latino	Multiracial	White	U.S./Canada	Africa	Asia	Caribbean	Europe	Latin America
Asian	1.000										
Black	-0.209****	1.000									
Latino	-0.119***	-0.191****	1.000								
Multiracial	-0.159****	-0.256****	-0.145****	1.000							
White	-0.261****	-0.420****	-0.238****	-0.320****	1.000						
U.S./Canada	-0.268****	-0.330****	-0.281****	0.237****	0.471****	1.000					
Africa	-0.088**	0.451****	-0.104**	-0.078*	-0.213****	-0.294****	1.000				
Asia	0.726****	-0.197****	-0.102**	0.021	-0.246****	-0.268****	-0.110**	1.000			
Caribbean	-0.166****	0.416****	0.191****	-0.004	-0.362****	-0.378****	-0.115***	-0.171****	1.000		
Europe	-0.085*	-0.156****	-0.060~	-0.041	0.249****	-0.129***	-0.068*	-0.094**	-0.110**	1.000	
Latin America	-0.125***	-0.200****	0.746****	0.094**	-0.265****	-0.318****	-0.109**	-0.122****	0.274****	-0.063~	1.000

~ <0.1; \* <0.05; \*\* <0.01; \*\*\* <0.001; \*\*\*\*<0.0001

Figure 1. Composite Tolerance: Black Population by Parents' Region of Origin

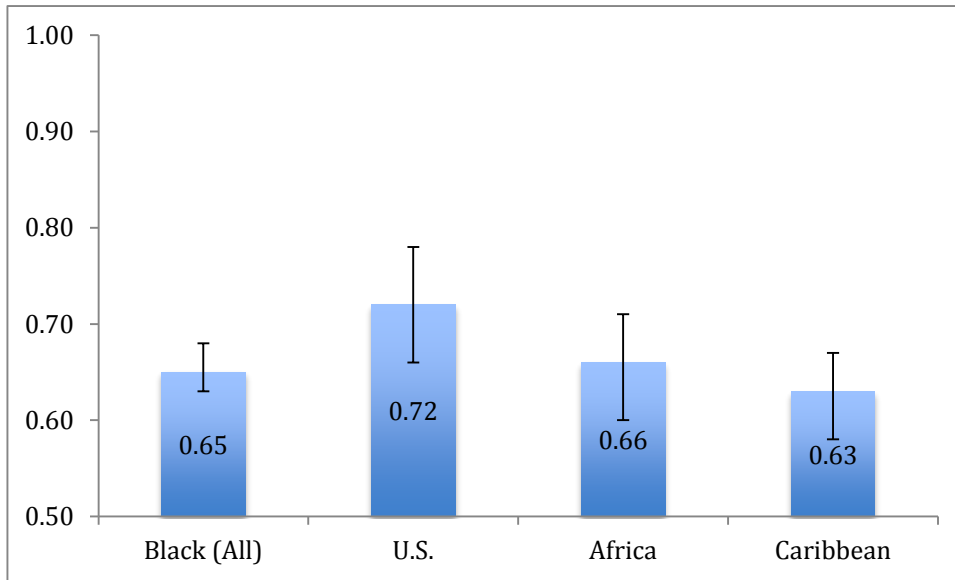


Figure 2. Contact Hypothesis by Race

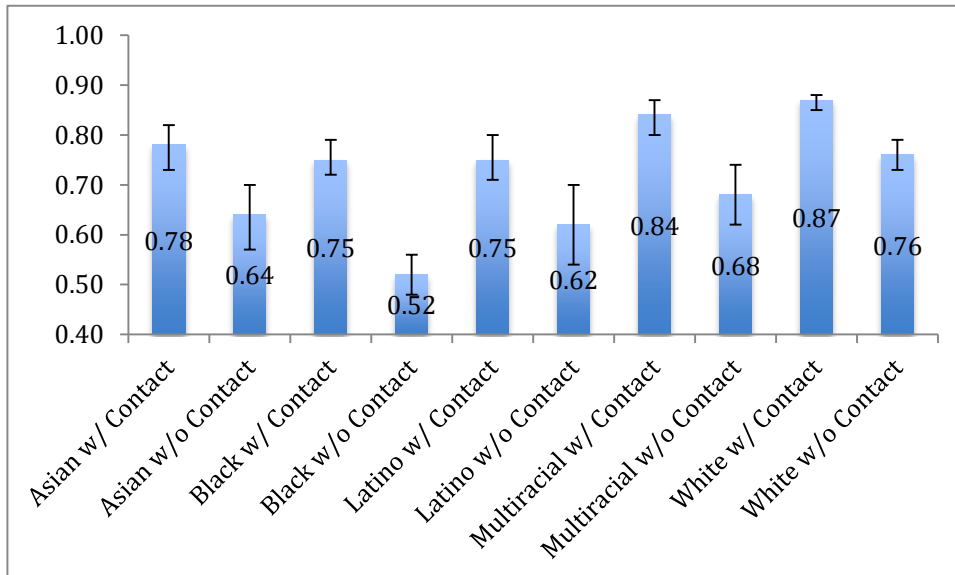


Figure 3. Contact Hypothesis by Parents' Region of Origin

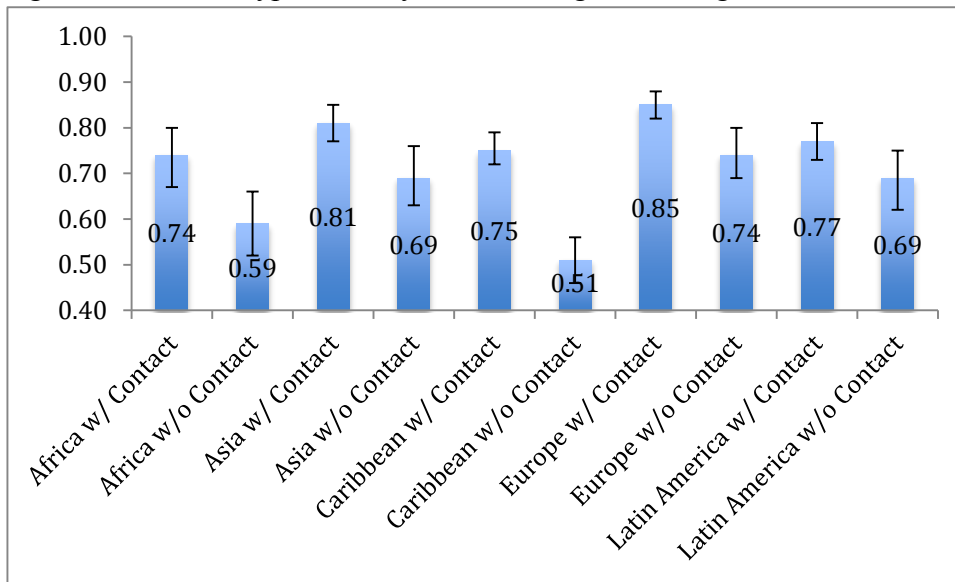
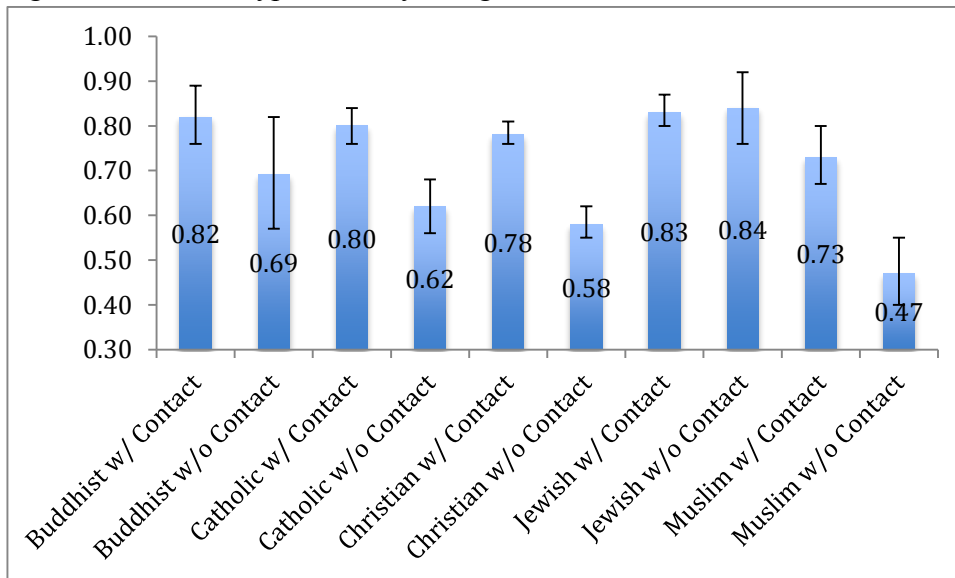


Figure 4. Contact Hypothesis by Religion



## **Article 2. The Role of Empathy in Reducing Prejudice Against Sexual Minority Youth**

### **Abstract**

Lesbian, gay, bisexual and questioning (LGBQ) youth face considerable discrimination and peer victimization, which has been associated with a number of negative health and educational outcomes. Engaging in activities triggering empathy and perspective-taking is one mechanism that has been used to decrease prejudice against various out-groups, although few studies have examined the use of empathy and perspective-taking as a means of reducing anti-LGBQ bias. In this study, I conducted an experiment using an intervention designed to increase tolerance and acceptance of homosexuality and gender nonconformity among high school students. The intervention consisted of an offer to participate in a one-on-one discussion about LGB people, including questions intended to increase their empathy and engage them in perspective-taking. In conducting this experiment, I sought to answer two research questions: I sought to answer two research questions: (1) whether the offer of the intervention impacted students' tolerance of homosexuality and gender nonconformity and (2) whether participating in the intervention had an impact on students' tolerance. Analysis of the results indicate that neither the offer of the treatment or participation in the treatment had statistically significant impacts on prejudice reduction: the views of students who were initially accepting of LGBQ people remained positive at the conclusion of the study, while those students with pre-existing anti-LGBQ bias did not become



more tolerant as a result of the offer or participation in the treatment, and in some cases were less tolerant at the end of the study. Further inquiry is needed to understand the reasons why the intervention had the opposite of the desired effect for intolerant students, in order to craft more appropriate prejudice-reduction strategies for students with pre-existing anti-LGBQ bias.

The discrimination that LGBTQ youth encounter places them at increased risk of a number of negative mental and physical health outcomes, including depression, suicidal ideation, suicide attempts and self-harm, engagement in sexual risk behaviors and substance abuse, obesity and eating disorders (Almeida, Johnson, Corliss, Molnar & Azrael, 2009; Austin, Nelson, Birkett, Calzo & Everett, 2013; Bostwick, Meyer, Aranda, Russell, Hughes, Birkett & Mustanski, 2014; Hatzenbuehler, 2011; Rosario, Corliss, Everett, Russell, Buchting & Birkett, 2014). Their experience of victimization is also associated with a host of negative academic outcomes, such as higher rates of school truancy and dropout, lower grade point averages, fewer positive relationships with teachers and other school staff, diminished college aspirations and lower college matriculation rates (Birkett, Espelage & Koenig, 2009; Kosciw, Greytak, Palmer & Boesen, 2014; Robinson & Espelage, 2011; Russell, Seif & Truong, 2001). Because adolescents frequently conflate gender nonconformity with homosexuality, gender nonconforming youth frequently face discrimination based on their real or perceived sexual orientation (Collier, Sandfort & Bos, 2012; Patrick, Bell, Huang, Lazarakis & Edwards, 2013). To some extent, these negative experiences may be compounded for LGBTQ youth of color (Daley, Solomon, Newman & Mishna, 2007; Homma & Saewyc, 2007; McCready, 2004; Narváez, Meyer, Kertzner, Ouellete & Gordon, 2009).

Students who are in accepting environments reporting more positive school experiences than their counterparts in schools with lower levels of tolerance, suggesting that peer attitudes play a major role in the lives of sexual minority

youth (Elze, 2003). By some measures, young people are very supportive of sexual minorities. For example, 81% of people ages 18-29 support same-sex marriage (Langer Research Associates, 2013). Despite this support among young adults, LGBTQ youth continue to face a number of challenges in high school, as shown by surveys of youth (e.g., Douglas-Brown, 2013; Kosciw, Greytak, Palmer & Boesen, 2014). In a national survey conducted by the Gay Lesbian Straight Education Network, 98% of LGB youth surveyed reported hearing homophobic language at school, 74% had been verbally harassed because of their sexual orientation, 39% had been physically harassed because of their sexual orientation, and nearly 20% reported having been physically assaulted because of their sexual orientation (Kosciw et al., 2014). Given these statistics, interventions must be fashioned to address intolerance and hopefully improve the school experiences of LGBTQ youth.

### **Use of Empathy to Reduce Anti-LGBTQ Bias**

One possible means of increasing acceptance of LGBTQ youth is by engaging young people in activities motivating empathy and encouraging them to engage in perspective-taking about the lives of LGB people. Empathy may be a promising direction for two reasons: first, it has been associated with prejudice reduction against various out-groups in previous studies and second, a small but growing body of research suggests a connection between empathy and reduced prejudice against LGB people.

**Empathy defined.** Before discussing the ways in which empathy may lead to prejudice reduction, I will briefly explain what I mean by empathy. Batson and Ahmad (2009) discuss four different psychological states that have been called empathy in recent years, two of which may be characterized as “perspective taking,” the other two as “emotional response” (p. 143). For the perspective-taking versions of empathy, one is called upon either to imagine “how one would think and feel in another person’s situation” or to imagine “how another person thinks or feels given his/her situation” (Batson & Ahmad, 2009, p. 144). For the emotional response forms of empathy, one is called upon to engage in emotion matching, i.e. “feeling *as* another person feels” or empathic concern, i.e. “feeling *for* another person who is in need” (Batson & Ahmad, 2009, p. 144). These empathic states are distinct but related, and each has been associated with more positive feelings towards the out-group as a whole, as well as more helping behaviors toward individual members of the out-group at issue (Batson & Ahmad, 2009).

**Empathy as a means of reducing prejudice against out-groups generally.** In a number of experiments, researchers have engaged subjects in activities designed to increase empathy towards various out-groups, and have found that these interventions have had a notable impact on the subjects’ attitudes about members of those out-groups. In a series of experiments conducted by Galinsky and Moskowitz (2000), college students who were given the prompt to put themselves in the shoes of an elderly person and were then tasked with writing an essay from an elderly person’s perspective expressed more positive attitudes

towards the elderly as a group. Similarly, in a set of experiments conducted by Shih, Wang, Bucher & Stotzer (2009), participants were asked “to put themselves in the shoes of an Asian American movie character” or to “imagine how [the character] feels about what is happening.” This perspective-taking resulted in prejudice reduction towards other members of the racial/ethnic group, inducing increased helping behavior toward Asian American individuals (Shih et al., 2009).

Reductions in prejudice were also observed when study participants were asked to imagine how out-group members must feel when encountering discrimination. Vescio, Sechrist and Paolucci (2003) conducted an experiment in which white college students observed an interview of a young black man recounting his experiences of racial discrimination. Participants who had been instructed to consider how the interviewee must feel reported more pro-black feelings than the control group who had been instructed to remain objective. In an experiment conducted by Dovidio, ten Vergert, Gaertner, Johnson, Esses, Riek and Pearson (2004), white college students watched a video clip from a news documentary showing several acts of racial discrimination against a black man. Participants who were asked to imagine the feelings of the man who had suffered discrimination reported more positive feelings towards blacks, less prejudice, and a greater likelihood to have future contact with black people compared to those instructed to remain objective, or to whom no specific viewing instructions were provided. Taken together, these studies suggest that empathy – whether triggered

by perspective-taking or emotional response – is associated with improved attitudes towards various out-groups.

**Empathy as a means of reducing prejudice against LGB people.** While few experiments have been conducted examining the role of empathy in improving attitudes towards LGB people as the out-group of interest, studies suggest that empathy is associated with reduced prejudice against LGB people. In an experiment intended to improve college students' attitudes towards gays and lesbians, students in the treatment group engaged in a simulation designed to mirror some of the marginalization lesbians and gays encounter, e.g., sanctions of public displays of affection, and were later asked a series of questions, including a prompt as to how the stimulation applied to conditions that gays and lesbians may encounter in society. This perspective-taking intervention – based on an active learning activity designed by Hillman and Martin (2002) that allowed students to experience the types of stereotyping and stigma often encountered by gays and lesbians – resulted in more favorable attitudes towards gays and lesbians through increased empathy (Hodson, Choma & Costello, 2009, p. 976). Similarly, in an experiment conducted by Karaçanta and Fitness (2006) in which participants viewed a video interview of a student who described experiencing being harassed and physically assaulted for being gay, participants who were instructed to “imagine how the person in the video feels about what has happened and how it has affected his life” (p. 2735) were more likely to support a campus-based anti-

violence program than those students instructed to be objective when watching the video.

Non-experimental studies also indicate a connection between empathy and positive attitudes towards LGB people. In their study of the relationship between homophobia and empathy, religiosity and coping style, Johnson, Brems and Alford-Keating (1997) found that both empathic concern and perspective-taking were related to attitudes about homosexuality, and that college students in their sample with higher levels of empathy were less likely to discriminate against gay and lesbians and exhibited lower levels of anti-gay prejudice. Stotzer (2008) also found that empathy was associated with more supportive attitudes towards LGB people in a sample of college students, and that in many cases, this empathic response was elicited through peer contact, particularly in connection with having observed experiences of oppression encountered by that LGB peer. As a whole, this research indicates that activities that engage young people's empathy for LGB people and the oppression they may encounter should reduce prejudice and increase positive attitudes towards LGB people.

**Potential for perspective-taking interventions to result in increased prejudice.** While prior studies suggests that empathy may lead to prejudice reduction in general, in some instances, interventions that seek to encourage empathy and perspective-taking may lead to increased prejudice. As Batson and Ahmad (2009) observe, perspective-taking may be less effective as a means of increasing positive feelings towards an out-group if the participant has

“entrenched antipathy toward” that group, because the participant may be reluctant to step into the other’s shoes, or the act of doing so “may sensitize [the participant] to differences rather than similarities between [herself] and the target” (p. 152). Under these circumstances, a perspective-taking intervention may in fact exacerbate negative feelings. As Hodson, Choma and Costello (2009) observe, methods asking individuals to imagine how an out-group member may feel “necessitate willingness and ability to perspective-take, a mindset unlikely among prejudice-prone individuals” (p. 974). Empathy may also be diminished when the victim of suffering “belongs to a different racial, political, or social group,” in which case participants in the intervention may have a diminished empathic response to the suffering experienced by the out-group member (Cikara, Bruneau & Saxe, 2011, p. 150). Thus, care should be given to ensure that empathy results in positive feelings for a stigmatized group despite a predisposition toward dampened empathic feelings towards members of that group. Taken as a whole, this research suggests that engaging youth in activities motivating empathy about LGBQ people may be one way to reduce prejudice, but that interventions may be less effective – and may in some cases lead to increased prejudice – for those youth with the highest levels of pre-existing anti-LGBQ bias. In the present study, I examine whether the offer to participate in an intervention intended to motivate students’ empathy for LGB people had an impact on their tolerance, and (2) whether participating in such an intervention had an impact on students’ tolerance.



## Methods

### Participants

Participants ( $N=614$ ) ranging in age from 13 to 21 ( $M=15.69$ ,  $SD=1.31$ ) were recruited from a northeastern high school. With respect to race, 35.1% of the students identified as white, 21.7% as black, 10.8% as Asian and 10.0% as Latino, with 15.7% of students identifying as more than one race, including those students who selected Latino and one or more additional races. Students' parents came from a number of regions around the world: while a majority of students (53.1%) had at least one parent born in the United States or Canada, 16.2% had parents from the Caribbean, 14.6% from Latin America, 10.5% from Asia, 10.0% from Europe and 7.9% from Africa. ESL enrollees accounted for 15.0% of the sample. Regarding religion, 33.0% of students identified as non-Catholic Christian (including both Protestant and Orthodox Christian), 11.5% as Catholic, 7.9% Jewish, 6.3% Muslim and 3.9% Buddhist, while 40.3% of students identified as atheist, agnostic or non-religious, including some students who also claimed a religious affiliation. Finally, more than 2/3 of the students (69.3%) reported having at least one lesbian, gay or bisexual (LGB) friend.

Students at the high school are purposefully assigned to one of four 400-student learning communities within the school “in a process that balances special education status, gender, zip code, bilingual status, and socioeconomic status” (X Public Schools). Within each learning community, students are randomly assigned into homerooms of approximately 20 students, where they remain for their entire

four years at the school. Assignment to treatment took advantage of student random assignment to homeroom. In the first step, from each of the four learning communities, two homerooms at each grade level were randomly selected for participation, for a total of 32 homerooms. In the second step, homerooms were randomly assigned to the control or treatment group. Assignment took place at both the grade level and learning community level, *i.e.*, equal numbers of homerooms in each grade and learning community were assigned to one of the two groups, for a total of approximately 320 students in each group. See Table 1 for detailed demographic characteristics of the sample by condition.

## **Measures**

**Demographic characteristics.** All demographic characteristics, as well as other measures, were based on students' self-report, as set forth above and in Table 1.

**Tolerance of homosexuality and gender nonconformity.** I created a continuous composite variable measuring students' self-reported tolerance for homosexuality and gender nonconformity, with more positive values representing higher levels of tolerance. Because I used both unipolar and bipolar response scales, I converted the scores to a 0-1 scale, where 0 represents completely intolerant and 1 represents completely tolerant. Seven of the items had unipolar response scales, e.g. "How bothered would you be if you discovered that a gay or lesbian classmate had a crush on you?" with the response options "extremely bothered," "quite bothered," "somewhat bothered," "slightly bothered" and "not

bothered at all.” Four of the items had bipolar response scales, e.g., “How comfortable or uncomfortable would you be if a male friend told you he was gay?” with the response options “totally comfortable,” “somewhat comfortable,” “slightly comfortable,” “neither comfortable nor uncomfortable,” “slightly uncomfortable,” “somewhat uncomfortable,” and “totally uncomfortable.” One item was a two part branching question, with the first question assessing students’ comfort level changing in the locker room generally, and the follow-up item assessing whether the student would be more comfortable or uncomfortable if a gay or lesbian classmate was present. This item was assessed slightly differently than the others, with responses of “much more comfortable” to “neither more nor less comfortable or uncomfortable” being compressed to a single score of 1, and responses denoting degrees of discomfort being spread between .67 and 0. The initial item measuring general comfort changing in the locker room was not included in assessing students’ overall tolerance.<sup>10</sup>

Prior to commencement of the study, the scale underwent three rounds of pilot testing. With respect to validity, both principal components analysis and exploratory factor analysis conducted support the existence of a single construct

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<sup>10</sup> For purposes of assessing student tolerance, I determined that students who were “neither more nor less comfortable or uncomfortable” based on the presence of an LGB peer were as tolerant as those who were “much more comfortable” or “slightly more comfortable.” The vast majority of students receiving a score of 1 for this item chose the neutral midpoint, i.e., “neither more nor less comfortable or uncomfortable.”

(with one factor and one principal component). With respect to reliability, the scale has a Cronbach's  $\alpha$  of .85, which is considered quite good.

**Post-experiment assessment measures.** In addition to the items included in the initial questionnaire, a number of new items were included to the questionnaire administered at the conclusion of the experiment. First, students were asked to report whether they had participated in the intervention, i.e., had engaged in a one-on-one interview. Self-report was required because the survey was anonymous, and attempts to match individual survey responses with interviews would have violated the students' expectations of anonymity. Second, students were asked whether they had had additional exposures to LGB-related subjects, e.g., books or television shows with LGB characters, discussions with family or friends about LGB people, participation in school-based LGB-related programming, etc. This inquiry was included to measure the extent to which changes in attitudes of students in both the control and treatment groups might be attributable to exposure to LGB content other than the intervention. Finally, a supplemental question designed to serve as an additional behavioral measure assessing changes in tolerance was included in the final questionnaire, i.e., allowing students to select that a donation be given either to a generic school charity or to the school's gay/straight alliance as a token of my appreciation for their participation in the study.

**Discussion protocol.** The discussion protocol, which is modeled on an interview protocol I used when conducting research at the same site during the

2011-2012 academic year, delves further into students' attitudes about LGBTQ people, including questions that seek to engage students in perspective-taking and to engage their empathic concern for LGBTQ people. For example, I asked a series of questions relating to the students' relationships with LGB people they know personally, beginning with their first time meeting an LGB person or realizing someone they knew was lesbian, gay or bisexual, and following up with such questions as "What was that like for you?" "How did it affect your understanding of that person?" and "How did it affect your understanding of what it means to be gay, lesbian or bisexual?" In addition, both to gauge students' general sense of the relationship between race and sexual orientation and to encourage them to think about how being a member of multiple minority groups might intensify challenges their LGB peers may encounter, students were asked the race(s) of the LGB person(s) they knew, as well as "Do you think it might be more or less difficult to be a gay, lesbian or bisexual person of that race (or races)?"

Another series of questions in the protocol were designed to engage students in perspective-taking, and particularly to activate their empathy concerning challenges that LGBTQ youth struggling with their sexual orientations may encounter. These questions were as follows: "Do you have any very good friends who you think are gay, lesbian or bisexual, but they are not open about it?" For those students who answered in the affirmative, follow-up questions included "Why do you suppose they have not told anyone?" and "What do you think this is like for them?" Additional unscripted questions were posed based on students'

responses. For students who answered in the negative, follow-up questions sought to assess how they thought it might be for a hypothetical peer who might not be open about his or her sexual minority identity. Additional unscripted questions were posed based on students' responses.

I developed the protocol after spending a number of months of observation at the site. The protocol is also based in part on an interview guide used with heterosexual adults by the Face Value Foundation, a non-profit organization whose mission is to reduce anti-LGBT bias.

### **Experimental Design**

During the beginning of the academic year, the questionnaire was administered to students in all 32 of the homerooms in the treatment and control groups in order to assess students' baseline tolerance. Following initial administration of the questionnaire, I visited each of the 16 homerooms in the treatment group in the fall and in the spring to solicit participants to engage in the intervention, characterized for purposes of my study as a one-on-one interview with me. Of the approximately 320 students in the treatment group, 141 volunteered to participate, although ultimately only 85 students engaged in the intervention. There is no single reason for the precipitous drop (~40%) between volunteering and participating: for five students, parental refusal was cited as the reason for non-participation. However, the vast majority of students fell into one of two categories: those who provided their contact information but did not

respond to multiple requests to schedule an interview (35) and those who scheduled an interview but failed to appear (16).

The demographic characteristics of the students who reported they engaged in the intervention as compared to those who declined the intervention are set forth in Table 2. While there are essentially no demographic differences between the control and treatment groups (see Table 1), there are large differences between those who engaged in and those who declined the intervention, particularly with respect to race (black and Latino students were much less likely to participate than white students), parents' region of origin (students with parents from the U.S., Canada and Europe were most likely to participate, especially relative to students with parents from the Caribbean and Latin America), religion (nonreligious students were more likely to participate) and sexual orientation (straight students were less likely to participate). For those students who elected to engage in the intervention, interviews took place in a classroom on campus during lunch or after school, and ranged in length from 10 minutes to one hour, with most interviews lasting approximately 25 minutes.

At the end of the academic year, approximately eight months after the study commenced, the questionnaire, with the additional items discussed above, was administered a second time to assess changes, if any, in students' attitudes as a result of the offer of the intervention or participation in the intervention.

## Missing Data

Not all students in the treatment or control groups were present during administration of both the initial and final questionnaires. Thus, my results include some students for whom only pre- or post-intervention tolerance scores are available as follows for the treatment group: initial score only ( $N=61$ ); final score only ( $N=31$ ); and both pre- and post-intervention scores available ( $N=200$ ). Although the control group had slightly more students who completed the questionnaire, the number of students absent for one of the administrations was comparable: initial score only ( $N=61$ ); final score only ( $N=44$ ); and both pre- and post-intervention scores available ( $N=217$ ).

In addition to the fact that not all students were present for both the initial and final administrations of the questionnaire, some students elected not to answer all of the items that formed a part of the tolerance scale. Although a failure to include demographic data was not a basis for exclusion from the analysis, only those students who completed more than 1/3 of the items, i.e., at least 5 of the 12 items that formed the tolerance scale, were included in the analysis, as I determined that a true estimate of their tolerance could not be made without a sufficient number of responses provided, particularly because of the mix between items assessing tolerance of homosexuality and those assessing tolerance of gender nonconformity, as well as specific items relating only to male or female homosexuality or gender nonconformity. Five students were excluded from the analysis due to failure to respond to a sufficient number of tolerance items.



## Analysis

In order to answer my research questions, I conducted multilevel modeling using STATA software, with students nested within the 32 homerooms participating in the study. I elected to use multilevel modeling due to the assignment of students to homerooms for four years, as I hypothesized that this might result in differences at the homeroom as well as individual levels, with a particular focus on differences based on students' demographic characteristics.

For my first inquiry, whether the offer of the intervention impacted students' tolerance of homosexuality and gender nonconformity, the predictor of interest was random assignment to the intervention (*TREATMENT*). The following equation describes a two-level multilevel model with classroom fixed effects:

$$OUTCOME\_TOLERANCE_{ij} = \beta_0 + \beta_1 TREATMENT_j + \beta_2 BASE\_TOLERANCE_{ij} + \beta_j X_{ij} + \varepsilon_{ij} + \nu_I$$

in which students are nested within homerooms.<sup>11</sup>

For my second inquiry, whether participating in the intervention had an impact on students' tolerance, as discussed below, I engaged in instrumental variable estimation to assess the impact of participation in the intervention. The first stage of the equation used in that inquiry is as follows:

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<sup>11</sup> Because the treatment was offered at the homeroom level, I engaged in multilevel modeling to analyze my results. However, the percentage of variance at the classroom level was negligible, as shown in Table 3.

$$USE\_TREATMENT_{ij} = \alpha_0 + \alpha_1 TREATMENT_{ij} + \alpha_2 BASE\_TOLERANCE_{ij} + \alpha_j X_{ij} + \varepsilon_{ij} + \nu_i$$

In this equation,  $\alpha_1$  represents the main effect of being assigned to treatment group,  $\alpha_2$  represents the main effect of student's baseline tolerance of homosexuality and gender nonconformity at the beginning of the study,  $\alpha_j$  represents main effect of selected controls,  $\varepsilon$  is a student-level residual and  $\nu$  is a classroom-level residual.

As part of the 2SLS procedure, the above values were used in the second stage model to estimate the causal effect of participation in the intervention on students' tolerance. The second stage equation is as follows:

$$OUTCOME\_TOLERANCE_{ij} = \beta_0 + \beta_1 USE\_TREATMENT_{ij} + \beta_2 BASE\_TOLERANCE_{ij} + \beta_j X_{ij} + \varepsilon_{ij} + \nu_i$$

In this equation,  $\beta_1$  represents the main effect of participating in the intervention offered to Treatment Group A,  $\beta_2$  represents the main effect of student's baseline tolerance of homosexuality and gender non-conformity at the beginning of the study, and  $\beta_j$  the main effect of selected controls. As in the first-stage equation,  $\varepsilon$  is a student-level residual and  $\nu$  is a classroom-level residual.

## Results

My results are organized around my research questions: (1) whether the offer of the intervention impacted students' tolerance of homosexuality and gender

nonconformity and (2) whether participating in the intervention had an impact on students' tolerance.

### **Does the Offer of the Intervention Affect Students' Tolerance?**

For my intent to treat (ITT) analysis, I examined the effect of the offer of the intervention on students' baseline tolerance. I hypothesized that the impact of the offer would be relatively small, absent a very large positive impact within the subgroup of students who accepted the offer to participate. In addition, previous analyses of the student data conducted following initial administration of the survey revealed that sex, race, ESL enrollment, religion, sexual orientation, having LGB friends, the number of LGB friends one had, and having parents from the Caribbean would have an impact on students' tolerance. Thus, in building my model, I hypothesized that these might be variables of interest. In order to account for other explanations of increased tolerance in both the control and treatment groups, I included a continuous variable representing exposure to LGB subject matter, and hypothesized that the number of exposures to LGB subject matter would be positively associated with higher levels of tolerance. The final fitted model includes the following variables of interest: baseline tolerance at the time the survey was initially administered, assignment to the treatment, sex, race, a continuous variable to represent the number of LGB friends, a continuous variable representing the number of LGB exposures, and an interaction term examining the relationship between being male and the number of LGB friends a respondent reported having. Baseline tolerance accounted for the largest portion of the

students' tolerance at the end of the experiment. Assignment to the treatment had a slightly negative association with students' tolerance at the end of the experiment, although it was not statistically significant in the model. See Table 3 for the taxonomy of models.

As set forth in Figures 1 and 2, mean pre- and post-intervention tolerance levels are relatively consistent across the treatment and control groups. The offer of the intervention appears to be associated with a slight decrease in overall tolerance for the least tolerant students in the treatment group, i.e., those with mean tolerance levels more than one standard deviation below the mean. For more tolerant students, the offer of the intervention did not have this negative effect. Figure 3 presents a lowess curve illustrating the differences in baseline and outcome tolerance by assignment to treatment or control groups. In addition to analyzing the offer of the intervention, I considered the impact of the students' participation in the intervention.

### **Does Participation in the Intervention Lead to Increased Tolerance?**

To examine the impact of participation in the intervention, I engaged in a treatment-on-the-treated (TOT) analysis, i.e., only those students who participated in the intervention were considered in this analysis. As set forth in Figure 1, those members of the treatment group who participated in the intervention had a much higher mean tolerance level prior to commencing the experiment than those who declined to participate, as well as those students in the control group. Note that as discussed above, in assessing participation, I was required to rely on students' self-

report, due to the anonymity of students' questionnaires. Thus, in some cases, students may have reported having engaged in the intervention when they did not. As a result of this self-report, 108 students reported having been interviewed, 23 more than the 85 students who actually participated, and which may not reflect students who did receive the intervention but were not in homeroom during the final administration of the survey.

To account for potential endogeneity in participation in the intervention, I obtained an instrumental variable estimate (IVE) of the relationship, using assignment to the treatment as my instrument (Murnane & Willett, 2011). In this case, endogeneity may occur because students who elected to participate in the intervention may differ from those who declined; specifically, it is likely that these students were more accepting of homosexuality and gender nonconformity, which informed their choice to participate in the intervention. "Instrumental variables estimation sometimes provides a method of obtaining an asymptotically unbiased estimate of the causal impact of an endogenous variable," in this case, the causal impact of exposure to the intervention on students' tolerance of homosexuality and gender nonconformity (Murnane & Willett, 2011, p. 205).<sup>12</sup> Thus, I used a two-stage least-squares approach to obtain an instrumental variable estimate. In the first stage, engagement in the treatment is regressed on the predictor that acts as a source of exogenous variation, i.e., assignment to the treatment. This allowed me

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<sup>12</sup> "Asymptotic unbiasedness ... means that the bias contained in IV estimates obtained from small samples may be substantial, but that this bias disappears as sample sizes grow very large" (Murnane & Willett, 2011, p. 205).

to separate out the exogenous variation that I subsequently used to predict students' tolerance during the second stage of the analysis. Thus, this second stage regression provided an asymptotically unbiased estimate of the causal relationship between participation in the intervention and students' tolerance of homosexuality and gender nonconformity (Willet & Murnane, 2011).

I used random assignment to the offer of the intervention (*TREATMENT*) as the principal instrument. For *TREATMENT* to be a viable instrument, two assumptions must hold. First, the offer of the intervention (*TREATMENT*) must be related to the endogenous question predictor (*USE\_TREATMENT*)(Murnane & Willett, 2011). This assumption is met because only students assigned to the treatment group received an offer to participate in the interview. Second, the instrument's relationship to the outcome must be through an endogenous predictor (Murnane & Willett, 2011). In other words, assignment to the treatment or control group must impact students' tolerance levels only through their participation in the intervention. This assumption is met because the only way that assignment to the treatment or control group would impact students' tolerance of homosexuality and gender nonconformity is through the use of the intervention, i.e., participation in the interview.

I hypothesized that participation in the intervention would lead to increased tolerance of homosexuality and gender nonconformity. However, it appears that participation in the treatment had a slightly negative, non-statistically significant impact on students' tolerance. In addition, I had the same a priori hypotheses

regarding demographic variables of interest, and sought to assess whether the impact of participation in the intervention varied based on student demographic characteristics. The final fitted model includes the following demographic variables of interest, in addition to students' baseline tolerance and participation in the intervention: sex, race, a continuous variable to represent the number of LGB friends, a continuous variable representing the number of LGB exposures, and an interaction term examining the relationship between being male and the number of LGB friends a respondent reported having. As was the case with the ITT analysis, baseline tolerance played the largest role in predicting students' tolerance at the end of the experiment. See Table 4.

Finally, as discussed above, an additional behavioral measure was included to assess whether the intervention had an impact on student attitudes. Specifically, I assessed whether assignment to the treatment group was associated with a greater likelihood of electing that a token contribution be made to the school's GSA, rather than to a generic school group. Using multilevel logistic regression analysis, I created a taxonomy of models in which the variables of interest included baseline tolerance, assignment to the treatment, sexual orientation, and the number of LGB exposures a student had over the course of the academic year. In this model, assignment to the treatment did not have a statistically significant relationship on students' decision to contribute to the GSA. See Table 5. This result is consistent with both my intent to treat and treatment on the treated analyses, i.e., factors other

than the intervention were largely responsible for predicting students' attitudes towards LGB people at the conclusion of the study.

### **Discussion**

There are a number of possible explanations for the lack of impact of the intervention on students' outcome tolerance. With respect to the offer of the intervention, while students in both the control and treatment groups with high levels of baseline tolerance have nearly identical levels of outcome tolerance, this is not the case for students with low levels of tolerance at the start of the study: for them, the offer of the intervention is associated with lower levels of outcome tolerance than the outcome tolerance of the control group. Previous research suggests that for those individuals with pre-existing bias towards an out-group, empathy and perspective-taking activities may reinforce these biases. In this instance, even without participating in the intervention itself, it may be the case that multiple requests to engage in interviews concerning their attitudes about lesbian, gay and bisexual people may have calcified pre-existing negative attitudes. Notably, this was true only for those students whose baseline tolerance was at least one standard deviation below the sample mean.

Students who participated in the one-on-one discussions had a higher mean baseline tolerance than those who declined the intervention, and therefore had less room for upward movement. Second, and related to the first point, the students who participated in the intervention – particularly those students under 18 for whom parental consent was required – were likely not only more tolerant than



their peers who declined (or whose parents declined permission), but also likely already had more fixed, positive attitudes about their LGB peers, as was evidenced from the content of the discussions with the majority of these students. For some students, the positive attitudes they exhibited came from having a close friend who was lesbian, gay or bisexual, while others had been close to LGB people since early childhood, whether as teachers, family members or family friends, underscoring the significance of intergroup contact in adolescents' acceptance of homosexuality.

The foregoing explanations alone do not explain the negative impact of the intervention, which may be attributable to the fact that while the majority of the students who engaged in the intervention showed quite high levels of baseline and outcome tolerance, this was not the case for all participants. As Figure 4 shows, it would appear that some of the students who participated in the intervention had the lowest levels of baseline tolerance in the treatment group, lower in fact than any of the students in the treatment group who declined the intervention. For these students, it is likely that the act of participating in an activity intended to engage them in perspective-taking may have enhanced their antipathy for lesbian, gay, and bisexual people. Notably, for all but a small subset of students with baseline tolerance far below the sample mean, the outcome tolerance levels of students who participated in the intervention are slightly higher than their peers who declined the intervention. The extremity of these students' intolerance, and the contrasting higher levels of baseline tolerance for the majority of the students who received

the intervention – resulting in a ceiling effect – may explain this negative overall impact of the treatment.

In addition to the issues concerning the types of students participating in the intervention and the different impacts based on initial tolerance, two logistical issues may also explain the lack of either the offer of the intervention or participation in the intervention to be associated with higher levels of outcome tolerance. As discussed above, students were required to self-report whether they participated in the intervention in the final questionnaire administration, and there are some students who are included in this analysis who did not in fact receive the treatment, although it is impossible to ascertain their identities due to the survey's anonymity. In addition, not all students were present for both the initial and final survey administrations. During the final administration of the survey, some of the students who had participated in the intervention were not present in homeroom, although it is impossible to provide an exact count of those absent. Thus, some of the students who are included in the treatment on the treated analysis may not have received the intervention, while others who did receive the intervention may not have been included in the treatment on the treated analysis. For these reasons, the failure of the intervention to be positively associated with increased tolerance, while disappointing, is not entirely surprising.

### **Implications**

While overall this discussion-based intervention had little impact on the attitudes of the students in the treatment group about homosexuality and gender

nonconformity, I believe the intervention would benefit from further exploration. As is evidenced from the distinction between those who participated and those who declined, the majority of those who declined fell into demographic categories associated with lower levels of tolerance, i.e., those most in need of intervention. A tolerance-building activity that is voluntary is unlikely to impact these students. Having similar, sustained discussions conducted by school personnel, where participation is not voluntary, might have a more meaningful impact for these students. Moreover, prior research suggests that individuals with pre-existing bias towards an out-group may be unwilling or unable to engage in perspective-taking about that group. In such instances, other types of activities designed to build tolerance and reduce prejudice may be appropriate.

As is evident from both the intent to treat and treatment on the treated models, exposure to LGB-themed materials, e.g., books, television shows, discussions about LGB people with friends and family, and attendance of the school's National Coming Out Day assembly were all positively associated with increased tolerance. Thus, to the extent that one-on-one discussions are not possible or may be unsuitable due to pre-existing bias, other types of exposures – including through LGB-inclusive curricular materials – may be effective means of prejudice reduction. Future research addressing adolescent attitudes about homosexuality and gender nonconformity should therefore focus on the impact of mandatory one-on-one discussions about sexual minorities and non-discussion based interventions, particularly geared toward demographic subgroups that may

be more intolerant, as well as the incorporation of LGB-inclusive curricular materials. These may all prove to be promising directions for creating more tolerant and accepting school environments for sexual minority students.

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## Appendix

Table 1. Student Demographic Characteristics by Condition: Treatment v. Control

	Treatment		Control		Difference Tests ( $\chi^2$ test)
	M (SE)	95% CI	M (SE)	95% CI	
Sex (Male)	.52 (.03)	.46, .57	.48 (.03)	.43, .54	0.72
Asian	.10 (.02)	.07, .14	.12 (.02)	.09, .16	0.71
Black	.23 (.03)	.18, .28	.21 (.02)	.17, .26	0.23
Latino	.10 (.02)	.07, .14	.11 (.02)	.07, .14	0.05
Multiracial	.15 (.02)	.11, .19	.18 (.02)	.13, .22	0.68
White	.38 (.03)	.33, .44	.35 (.03)	.30, .40	0.73
U.S./Canada	.59 (.03)	.53, .64	.57 (.03)	.51, .63	0.15
Africa	.08 (.02)	.05, .11	.09 (.02)	.06, .13	0.45
Asia	.11 (.02)	.07, .15	.12 (.02)	.08, .15	0.06
Caribbean	.16 (.02)	.12, .20	.19 (.02)	.14, .23	0.63
Europe	.11 (.02)	.07, .15	.11 (.02)	.07, .14	0.02
Latin America	.12 (.02)	.08, .15	.15 (.02)	.11, .19	1.60
Non-Religious	.43 (.03)	.37, .49	.43 (.03)	.37, .48	0.01
Buddhist	.05 (.01)	.03, .08	.03 (.01)	.01, .05	2.72
Catholic	.11 (.02)	.07, .14	.13 (.02)	.10, .17	0.97
Christian	.35 (.03)	.29, .40	.35 (.03)	.30, .41	0.04
Jewish	.09 (.02)	.05, .12	.08 (.02)	.05, .11	0.01
Muslim	.07 (.02)	.04, .11	.06 (.01)	.03, .09	0.50
Free Lunch	.38 (.03)	.32, .44	.37 (.03)	.31, .42	0.16
ESL-enrolled	.16 (.02)	.12, .20	.16 (.02)	.11, .20	0.02
Straight	.87 (.02)	.83, .91	.86 (.02)	.82, .90	0.19
Gay Friends	.74 (.03)	.69, .79	.73 (.03)	.68, .78	0.05



Table 2. Student Demographic Characteristics in Treatment Group: Participants v. Non-Participants

	Received Treatment		Declined Treatment		Difference Tests ( $\chi^2$ test)
	M (SE)	95% CI	M (SE)	95% CI	
Sex (Male)	.47 (.05)	.38, .57	.51 (.05)	.42, .60	0.38
Asian	.10 (.03)	.05, .16	.12 (.03)	.06, .18	0.12
Black	.14 (.03)	.07, .21	.29 (.04)	.21, .37	7.02**
Latino	.05 (.02)	.01, .09	.14 (.03)	.07, .20	5.03*
Multiracial	.20 (.04)	.12, .28	.11 (.03)	.05, .17	3.37~
White	.47 (.05)	.37, .56	.32 (.04)	.24, .41	4.67*
U.S./Canada	.68 (.05)	.59, .77	.54 (.05)	.45, .63	4.16*
Africa	.06 (.02)	.01, .10	.07 (.02)	.02, .12	0.20
Asia	.11 (.03)	.05, .18	.11 (.03)	.06, .18	0.01
Caribbean	.09 (.03)	.03, .14	.22 (.04)	.14, .30	7.26**
Europe	.15 (.04)	.08, .22	.05 (.02)	.01, .10	5.60*
Latin America	.08 (.03)	.02, .13	.17 (.04)	.10, .24	4.56*
Non-Religious	.50 (.05)	.41, .60	.38 (.04)	.29, .47	3.98*
Buddhist	.06 (.02)	.01, .10	.04 (.02)	.01, .08	0.26
Catholic	.10 (.03)	.04, .15	.14 (.03)	.07, .20	0.88
Christian	.28 (.04)	.19, .36	.36 (.04)	.27, .44	1.63
Jewish	.10 (.03)	.04, .15	.08 (.02)	.03, .12	0.26
Muslim	.07 (.02)	.02, .12	.08 (.02)	.03, .12	0.08
Free Lunch	.31 (.05)	.21, .40	.38 (.05)	.28, .49	1.19
ESL-enrolled	.16 (.04)	.09, .23	.19 (.04)	.12, .26	0.26
Straight	.80 (.04)	.72, .88	.93 (.02)	.89, .98	8.61**
Gay Friends	.79 (.04)	.71, .87	.68 (.04)	.59, .77	3.47~

Key: ~  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 3. Estimates and standard errors for outcome tolerance based on the offer of the intervention (Intent to Treat)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	0.774*** (0.009)	0.127*** (0.022)	0.133*** (0.022)	0.172*** (0.025)	0.228*** (0.032)	0.218*** (0.028)	0.236*** (0.029)	0.228*** (0.028)
Baseline Tolerance Assignment to Treatment		0.845*** (0.027)	0.846*** (0.027)	0.816*** (0.028)	0.771*** (0.030)	0.751*** (0.031)	0.755*** (0.031)	0.724*** (0.031)
Male			-0.016 (0.010)	-0.016~ (0.0010)	-0.019* (0.009)	-0.018~ (0.009)	-0.017~ (0.009)	-0.017~ (0.009)
Asian				-0.029** (0.010)	-0.030** (0.010)	-0.022* (0.010)	-0.057*** (0.016)	-0.053** (0.016)
Black					-0.041** (0.015)	-0.030* (0.015)	-0.032* (0.015)	-0.025 (0.015)
Latino					-0.046** (0.013)	-0.039* (0.014)	-0.040** (0.014)	-0.033* (0.014)
Multiracial					-0.042** (0.016)	-0.044** (0.016)	-0.043** (0.016)	-0.039* (0.016)
LGB Friend Number					0.006 (0.014)	-0.002 (0.014)	-0.001 (0.014)	0.006 (0.014)
Male × LGB Friend Number						0.010** (0.003)	0.001 (0.004)	-0.001 (0.004)
# of LGB Exposures							0.017** (0.006)	0.018** (0.006)
Residuals								0.011** (0.003)
Room Level	$1.20 \times 10^{-8}$ ( $5.15 \times 10^{-8}$ )	0.003 (0.026)	$1.47 \times 10^{-10}$ ( $6.13 \times 10^{-10}$ )	$8.68 \times 10^{-8}$ ( $2.97 \times 10^{-7}$ )	$1.98 \times 10^{-12}$ ( $8.57 \times 10^{-12}$ )	$5.95 \times 10^{-12}$ ( $2.26 \times 10^{-11}$ )	$4.55 \times 10^{-14}$ ( $1.77 \times 10^{-13}$ )	$2.75 \times 10^{-13}$ ( $1.19 \times 10^{-12}$ )
Person Level	0.198 (0.006)	0.098 (0.004)	0.098 (0.003)	0.097 (0.003)	0.094 (0.003)	0.092 (0.003)	0.091 (0.003)	0.090 (0.003)

Key: ~  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 4. Second Stage IVE estimates and standard errors for outcome tolerance based on use of the intervention (Treatment on the Treated)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	0.128*** (0.022)	0.167*** (0.026)	0.224*** (0.029)	0.214*** (0.029)	0.231*** (0.029)	0.223*** (0.029)
Interview	-0.034 (0.021)	-0.033 (0.021)	-0.040~ (0.021)	-0.036~ (0.020)	-0.034~ (0.019)	-0.033~ (0.019)
Baseline Tolerance	0.853*** (0.028)	0.823*** (0.030)	0.777*** (0.031)	0.756*** (0.032)	0.760*** (0.032)	0.728*** (0.032)
Male		-0.029** (0.010)	-0.030** (0.010)	-0.022* (0.010)	-0.055** (0.016)	-0.051** (0.016)
Asian			-0.043** (0.016)	-0.032* (0.016)	-0.033* (0.016)	-0.026~ (0.016)
Black			-0.050*** (0.014)	-0.042** (0.014)	-0.043** (0.014)	-0.035* (0.014)
Latino			-0.046** (0.017)	-0.048** (0.017)	-0.047** (0.017)	-0.042* (0.016)
Multiracial			0.006 (0.014)	-0.001 (0.014)	-0.001 (0.014)	0.007 (0.014)
Gay Friend Number				0.011** (0.003)	0.002 (0.005)	-0.0004 (0.005)
Male × Gay Friend Number					0.017** (0.006)	0.017** (0.006)
# of LGB Exposures						0.011** (0.003)
Residuals						
$\sigma_u$	0.003	0.008	0.008	0.006	0	0
$\sigma_e$	0.098	0.097	0.095	0.094	0.093	0.092
$\rho$	0.001	0.006	0.008	0.004	0	0

Key: ~  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 5. Estimates and standard errors for selection of donation to GSA over general student group

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	-0.485*** (0.105)	-4.905*** (0.767)	-4.884** (0.770)	-4.134*** (0.814)	-3.243*** (0.887)	-3.388*** (0.897)	-3.893*** (0.861)
Baseline		5.483*** (0.902)	5.496*** (0.904)	4.869*** (0.923)	4.684*** (0.926)	3.893*** (0.962)	4.304*** (0.944)
Tolerance			-0.067 (0.229)	-0.045 (0.231)	-0.058 (0.234)	-0.052 (0.237)	-0.066 (0.236)
Assignment to Treatment				-0.532* (0.241)	-0.453~ (0.245)	-0.390 (0.249)	
Male					-0.874* (0.349)	-0.767* (0.356)	-0.813* (0.356)
Straight						0.223** (0.079)	0.235** (0.079)
# of LGB Exposures							
Residuals							
Room	0.168	$6.32 \times 10^{-10}$	$4.53 \times 10^{-10}$	$7.90 \times 10^{-11}$	$6.63 \times 10^{-10}$	$1.46 \times 10^{-9}$	$3.18 \times 10^{-10}$
Level	(0.279)	(.205)	(.205)	(.200)	(.204)	(.231)	(.237)

Key: ~  $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

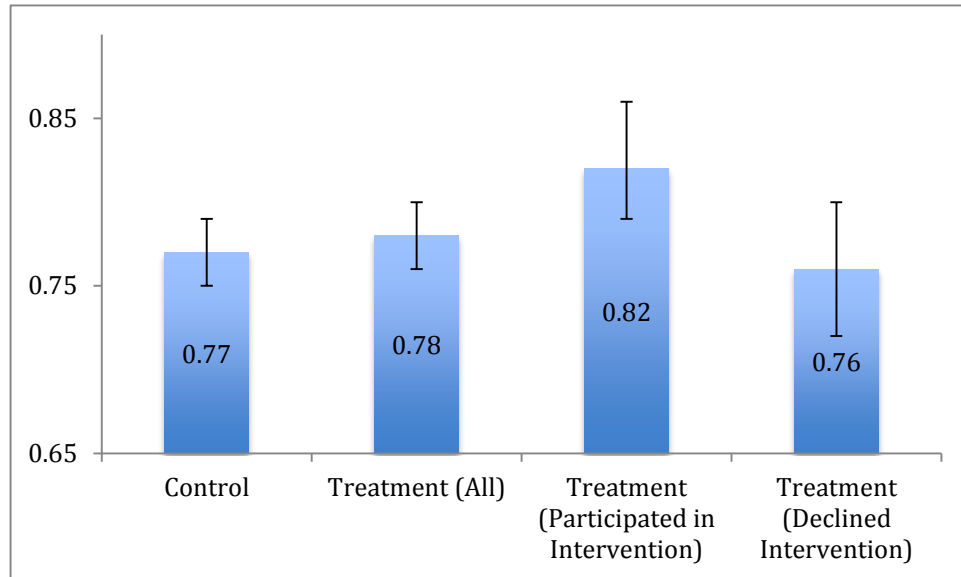


Figure 1. Student Baseline Tolerance by Condition

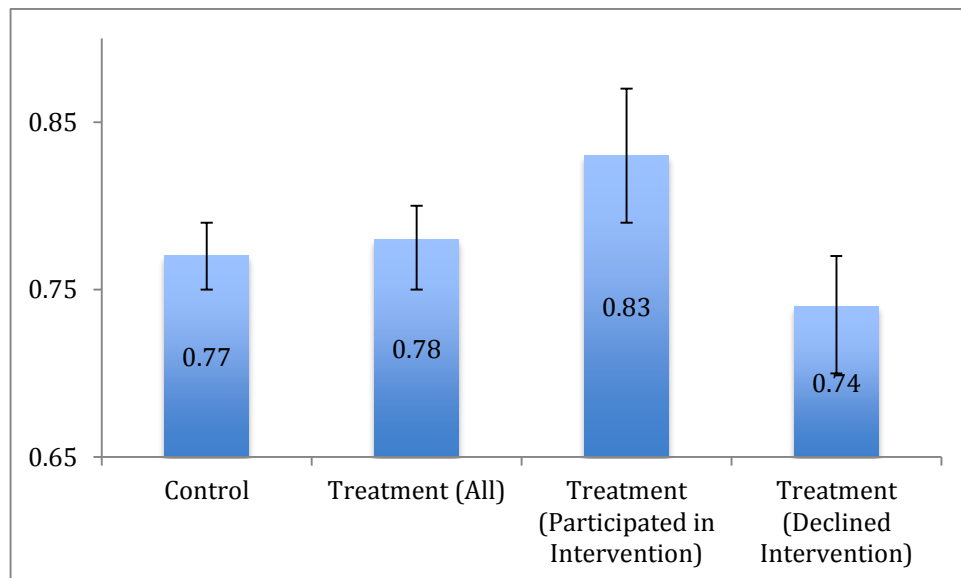


Figure 2. Student Outcome Tolerance by Condition

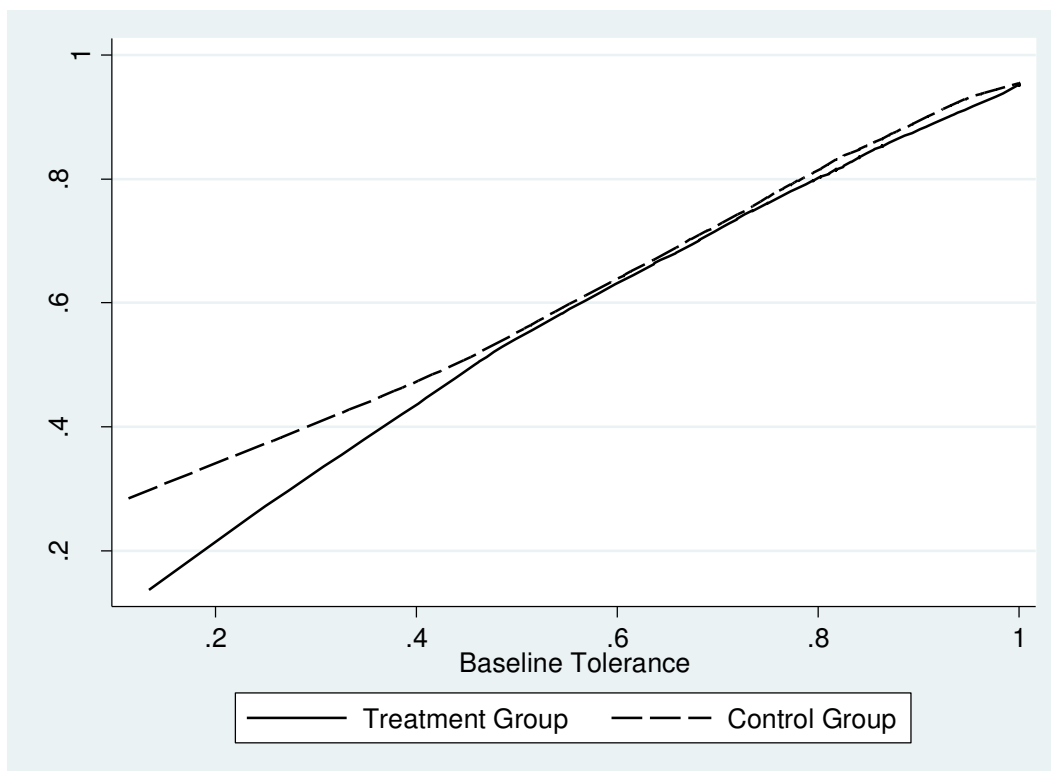


Figure 3. Lowess Curve of Baseline and Outcome Tolerance by Condition

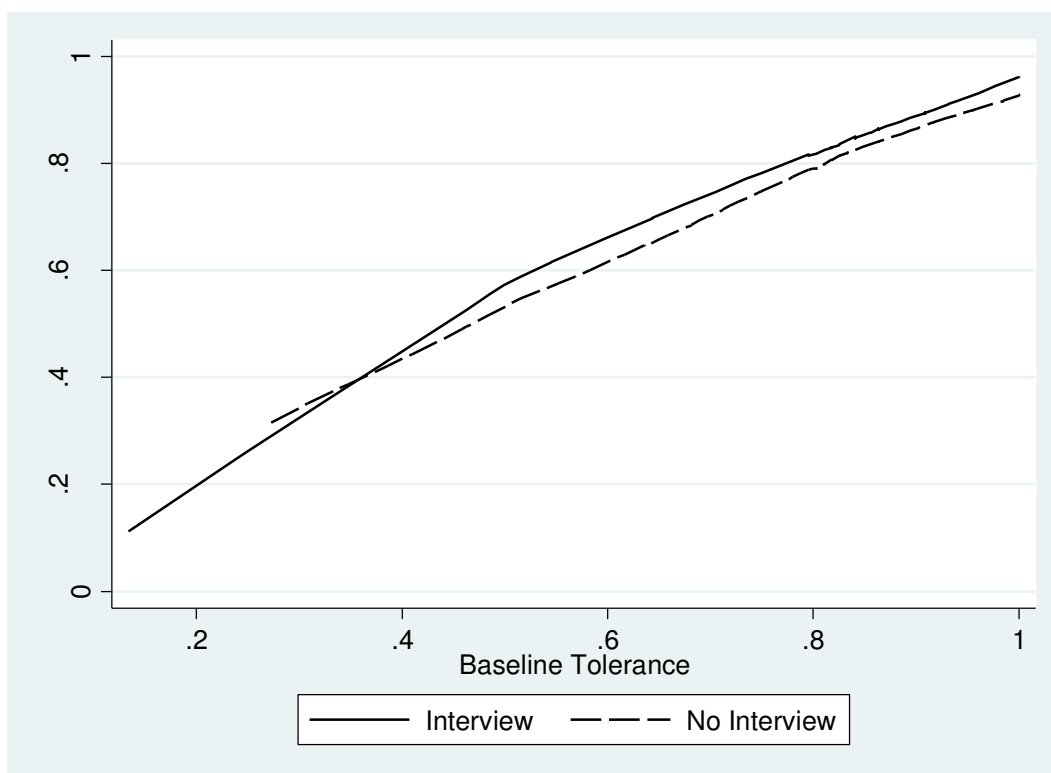


Figure 4. Lowess Curve of Baseline and Outcome Tolerance by Treatment

### **Article 3. The Mere Exposure Effect and Its Impact on Attitudes About Homosexuality and Gender Nonconformity**

#### **Abstract**

Lesbian, gay, bisexual and questioning (LGBQ) youth face considerable discrimination and peer victimization, which has been associated with a number of negative health and educational outcomes. The mere exposure effect – based on the phenomenon that repeated exposures to a stimulus may enhance preference for that stimulus – has been studied in a number of contexts, although it has not previously been examined in relation to LGBQ people, nor has its application been examined in the context of exposure to questionnaires. In the present study, I conducted an experiment using an intervention designed to increase tolerance and acceptance of homosexuality and gender nonconformity among high school students. The intervention consisted of multiple exposures over the course of an academic year to a questionnaire assessing students' attitudes about homosexuality and gender nonconformity. In conducting this experiment, I sought to assess whether multiple exposures to a questionnaire about homosexuality and gender nonconformity would increase students' liking for LGBQ people. Analysis of the results indicate that participation in the treatment did not statistically significant impact prejudice reduction: the views of students who were initially accepting of LGBQ people remained positive at the conclusion of the study, while those students with pre-existing anti-LGBQ bias did not become more tolerant as a result of the treatment, and in fact, less tolerant students appeared to experience a

slight increase in prejudice at the conclusion of the experiment. Further inquiry is needed to determine whether the mere exposure effect is an appropriate means of reducing anti-LGBQ bias, as well as whether questionnaires are an appropriate stimulus for a mere exposure experiment.



Lesbian, gay, bisexual and questioning (LGBQ) youth are at greater risk of negative health and educational outcomes than their heterosexual counterparts due to discrimination based on sexual orientation and gender expression. These negative outcomes include a heightened risk of depression, suicidal ideation, suicide attempts and self-harm, engagement in sexual risk behaviors and substance abuse, obesity and eating disorders, as well as higher rates of school truancy and dropout, lower grade point averages, diminished college aspirations and lower college matriculation rates (Almeida, Johnson, Corliss, Molnar & Azrael, 2009; Austin, Nelson, Birkett, Calzo & Everett, 2013; Bostwick, Meyer, Aranda, Russell, Hughes, Birkett & Mustanski, 2014; Hatzenbuehler, 2011; Robinson & Espelage, 2011; Rosario, Corliss, Everett, Russell, Buchting & Birkett, 2014). Gender nonconforming youth also encounter discrimination based on their real or perceived non-heterosexual identity, as nonconforming gender expression is frequently conflated with homosexuality (Collier, Sandfort & Bos, 2012; Kosciw, Greytak, Palmer & Boesen, 2014; Patrick, Bell, Huang, Lazarakis & Edwards, 2013).

Peer attitudes have a significant impact on the experiences of sexual minority youth, with those students who are in accepting environments reporting more positive school experiences than their counterparts in less accepting environments (Elze, 2003; Kosciw et al., 2014). By some measures, young people are very supportive of sexual minorities. For example, 81% of people ages 18-29 support same-sex marriage (Langer Research Associates, 2013). Despite young

adults' endorsements of marriage equality for LGB adults, LGBQ youth continue to face a number of challenges in high school, as shown by surveys of these youth (e.g., Douglas-Brown, 2013; Kosciw et al., 2014). In a national survey conducted by the Gay Lesbian Straight Education Network, 98% of LGB youth surveyed reported hearing homophobic language at school, 74% had been verbally harassed because of their sexual orientation, 39% had been physically harassed because of their sexual orientation, and nearly 20% reported having been physically assaulted because of their sexual orientation (Kosciw et al., 2014). Due to the physical and verbal hostility these youth encounter, more than 55% of LGB youth surveyed reported feeling unsafe at school because of their sexual orientation. Given the challenging circumstances that LGBQ youth face in schools, interventions must be fashioned to address intolerance and improve the school experiences of LGBQ youth.

### **The Mere Exposure Effect as a Vehicle for Anti-LGBQ Bias Reduction**

One possible vehicle for increasing acceptance of LGBQ youth is by means of the mere exposure effect. A phenomenon first recognized by Zajonc (1968), the mere exposure effect has been studied as a means of improving attitudes toward various stimuli – including people – in a number of experiments, and may be a means of improving young people's attitudes about LGBQ people.

**Mere exposure effect defined.** A significant body of research indicates that repeated exposure to a stimulus may be sufficient to increase a research subject's liking for the thing to which she has been exposed (Zajonc, 2001).

According to Zajonc, “repetitions of an experience in and of themselves are capable of producing a diffuse affective state” and “can also generate positive affect in response to additional stimuli that are similar in form or substance” (2001, p. 226). The mere exposure effect does not require positive reinforcement; greater familiarity with the stimulus through multiple exposures is sufficient to increase liking. The mere exposure effect has been examined in a number of studies, using stimuli as diverse as ideographs, nonsense words, names, paintings, photographs and polygons (Bornstein, 1989), although its use in connection with questionnaires has not been previously examined.

**Generalized versus traditional exposure effect.** The mere exposure effect may be divided into two categories: traditional and generalized (Smith, Dijksterhuis & Chaiken, 2007). With the traditional mere exposure effect, research participants – after having been exposed to a certain set of stimuli a number of times – prefer these old stimuli to new stimuli of the same type. For example, multiple exposures to Chinese characters resulted in participants’ increased preference to the familiar Chinese characters compared to new Chinese characters to which they had not previously been exposed.

In contrast, a generalized mere exposure effect concerns categories of stimuli, rather than specific stimuli. For example, in an experiment conducted by Monahan, Murphy, and Zajonc (2000), some study participants were exposed to one category of stimuli (Chinese characters), other participants to a different category of stimuli (polygons), with a third group serving as a control, i.e., no

exposures. Following this, all participants were asked to rate a set of Chinese characters and polygons, including some to which they had previously been exposed as well as new stimuli from the same category and the non-exposed category. Under these conditions, study participants from each of the exposure conditions liked all stimuli from the exposed category more than stimuli from the non-exposed category, regardless of whether they had previously been exposed to the specific stimuli. Smith, Dijksterhuis and Chaiken refer to this as a “generalized mere exposure effect” (2007, p. 52). It is this latter type of mere exposure effect that is one of the aims of the current experiment. Specifically, the exposure to LGB-related content through the experiment was intended to generalize to more positive attitudes towards LGB people as a group.

**Mere exposure effect as a means of improving attitudes towards groups of people.** The vast majority of mere exposure experiments have involved relatively neutral, simple stimuli, e.g., polygons, ideographs, nonsense words (Bornstein, 1989), in which little of personal import is at stake. However, some researchers have considered its use in efforts to improve attitudes about groups of people, and it has met with some success. As Smith, Dijksterhuis and Chaiken (2007) observed, “even interactionless exposures to members of a particular group should improve attitudes toward that group” (p. 50). Thus, in a number of studies, subjects have been exposed to photographic images of faces of people, often to assess whether exposure to these images increased participants’ liking for those or similar faces.

Rhodes, Halberstadt and Brajkovich (2001) examined the generalized mere exposure effect in order to assess whether repeated exposure to photographic images of faces would increase liking for both the familiar faces and composites of the familiar faces. Using a set of images of both white and Chinese faces, they found that among both high school and college students participating in their experiments, repeated exposure led to increased liking of familiar faces as compared to novel faces, and that participants rated composites of the familiar faces higher than both the individual previously exposed faces and to composites of novel faces. Similarly, in a set of experiments conducted by Campbell and McKeen (2011), participants rated images of faces to which they had previously been exposed as more approachable than novel faces. Although no follow-up research was conducted, one reasonable assumption to make from these experiments is that this increased familiarity and perception of approachability of photographic images of people led to increased acceptance of and decreased prejudice towards actual people who were members of these groups.

The mere exposure effect has also been used in the context of assessing its impact on subjects' liking of other-race faces. In an experiment conducted by Zebrowitz, White and Wieneke (2008), white undergraduate students were assigned to one of two exposure conditions: multiple exposures to photographs of Korean or white faces. Participants were subsequently asked to rate multiple photographs – including some of which they had already been exposed – based on familiarity and likeability. Students in the Korean exposure group subsequently

rated Korean faces – including faces to which they had not been previously exposed – higher than the students in the white exposure group, and in fact rated them higher than the white faces in the Korean exposure group, i.e., they experienced a generalized mere exposure effect. A second experimental manipulation involving exposure of white students to black and white faces also found higher ratings of likeability for both familiar and new black faces in the black exposure group than in the white exposure group. Notably, this was consistent with findings made by Bornstein in a meta-analysis of mere exposure effect research, in which he concluded that “other-race mere exposure effects were more than 50% larger than own-race effects” (Zebrowitz, White & Wieneke, 2008, p. 266). Of particular interest is the finding that “prejudice derives in part from negative reactions to faces that deviate from familiar own-race facial prototype by demonstrating a link between manipulated familiarity and consequent likeability of other-race faces” (p. 267). Thus, the mere exposure effect may serve as a means of prejudice reduction by increasing participants’ familiarity with various out-groups, as a kind of intergroup contact by proxy.

Finally, in Campbell, Neuert, Friesen and McKeen’s (2010) study of social approachability through the mere exposure effect, participants were exposed to a mix of faces of European, African and Asian origin, including both novel and familiar faces. They were tasked with giving each face an approachability rating based on their likelihood of engaging them in casual conversation. After accounting for imbalance based on neutral versus mildly positive faces, the latter

of which have been found to be assessed more positively than the former (Campbell & McKeen, 2011), Campbell, Neuert, Friesen and McKeen (2010) found that the participants rated non-white faces as more approachable than white faces. In each case, participants were able to generalize their increased preference across people within the racial group to which they had been exposed.

While the foregoing research is promising, reporting increased liking based on exposure to photographic images and attitudes towards actual people are entirely different matters. The mere exposure research that has been conducted using images has been largely limited to laboratory settings, and no follow-up research has been conducted to assess if the increased positive feelings during the course of the experiment have translated to actual intergroup contact, or to generalized positive feelings towards the groups involved in the studies. Tracking changes in attitudes over the course of several months might be one means of assessing the impact of the mere exposure effect over time.

**Potential for mere exposure effect leading to decreased liking.** While the foregoing studies suggest that repeated exposure to a perceived out-group may increase subsequent liking by members of the in-group, these effects may hinge on initial attitudes, and repeated exposure has the potential to strengthen both negative and positive pre-existing attitudes (Smith et al., 2007, p. 61; Crisp, Hutter & Young, 2009). In a study conducted by Crisp, Hutter and Young (2009), multiple exposures to a stimuli decreased participants' liking for the stimuli. In one of their experiments, students at a U.K. university were asked to rate English

and French names. Some students were told that French participants in the study were rating English names much lower than French names. Following this prompt, “the more participants were exposed to out-groups names, the less they liked them, and the higher they identified with their in-group” (Crisp, Hutter & Young, 2009, p. 144). According to Crisp, Hutter and Young (2009), this finding emphasized the importance of examining the context of exposure to out-group related materials, as exposure under threatening conditions may enhance dislike. Harrison and Crandall (1972) similarly found that “mere exposure to a group toward which subjects are initially negatively predisposed will tend to increase the initial negative predisposition” (p. 43), suggesting that some manipulation of the stimuli may be necessary for the mere exposure effect to have a positive impact. Even when a threat condition does not lead to greater dislike for a stimulus, it may not lead to greater liking. Thus, in Young and Claypool’s (2009) study, participants repeatedly exposed to neutral and angry faces had a greater liking for familiar neutral faces, but did not report a greater liking for familiar angry faces. Hence, repeated exposure to a stimulus has the potential to exacerbate bias among those negatively predisposed towards to subject to which they are exposed, and at the very least may be unlikely to lead to greater liking. Taken as a whole, this research suggests that the mere exposure effect may possibly be used to reduce prejudice and increase acceptance of out-groups, although it may have the opposite effect on individuals with a pre-existing bias against the out-group of interest.



Notably, the use of the mere exposure effect has not yet been attempted either with respect to sexual minorities, or by means of exposure to a questionnaire. Given the heightened victimization to which sexual minority youth are subject, using the mere exposure effect as a means of prejudice reduction could have a meaningful impact in their lives. Moreover, to the extent that repeated exposures to a questionnaire may be used to reduce prejudice against out-groups as a type of proxy for intergroup contact, even those students who have had no meaningful contacts with real LGBTQ people may experience increased tolerance and acceptance for homosexuality and gender nonconformity, which may translate into their behaviors toward their actual LGBTQ peers.

In the present study, I sought to answer the following question: does the repeated exposure to a questionnaire assessing attitudes about homosexuality and gender non-conformity cause high school students to become more tolerant of sexual minorities, and do the effects of such an intervention differ across subgroups of students? I hypothesized that students exposed to the questionnaire a number of times would become more tolerant than those who were not treated to multiple exposures based on the mere exposure effect, although the impact of this intervention might be negative for students with pre-existing anti-LGBTQ bias.

## **Methods**

### **Participants**

Participants ( $N=661$ ) ranging in age from 13 to 19 ( $M=15.67$ ,  $SD=1.30$ ) were recruited from a northeastern high school. Male students were slightly

overrepresented in the sample (50.9%). With respect to race, 33.4% of the students identified as white, 25.8% as black, 11.8% as Asian and 9.9% as Latino, with 16.4% of students identifying as more than one race, including those students who selected Latino and one or more additional races. Students' parents came from a number of regions around the world: while a majority of students (54.9%) had at least one parent born in the United States or Canada, 20.8% had parents from the Caribbean, 13.5% from Latin America, 10.3% from Asia, 10.0% from Europe and 9.5% from Africa. ESL enrollees accounted for 19.2% of the sample. 43.5% of the students in the sample qualified for free or reduced lunch. Regarding religion, 38.0% of students identified as non-Catholic Christian (including both Protestant and Orthodox Christian), 11.7% as Catholic, 8.6% Jewish, 8.3% Muslim and 2.9% Buddhist, while 37.7% of students identified as atheist, agnostic or non-religious, including some students who also claimed a religious affiliation. Finally, slightly more than 2/3 of the students (68.6%) reported having at least one lesbian, gay or bisexual friend.

Students at the high school are purposefully assigned to one of four 400-student learning communities within the school “in a process that balances special education status, gender, zip code, bilingual status, and socioeconomic status” (X Public Schools). Within each learning community, the students are purportedly randomly assigned into homerooms of approximately 20 students, where they remain for their entire four years at the school. This method of assignment was created in response to a previous choice model, which resulted in significant

divisions based on race and SES and was accompanied by substantial academic achievement gaps (Evans, 2003). Assignment to treatment took advantage of student random assignment to homeroom. To select participants for the present study, in the first step, from each of the four learning communities, two homerooms at each grade level were randomly selected for participation, for a total of 32 homerooms. In the second step, homerooms were randomly assigned to the control or treatment group. Assignment took place at both the grade level and learning community level, *i.e.*, equal numbers of homerooms in each grade and learning community were assigned to one of the two groups, for a total of approximately 320 students in each group. See Table 1 for detailed demographic characteristics of the sample by condition. As is evident, there are some statistically significant demographic differences between the treatment and control groups with respect to race (more black students in the treatment than control group), religion (fewer non-religious students and more Muslim students in the treatment than control group), socioeconomic status (more free and reduced lunch recipients in the treatment than control group), and English language proficiency (more ESL-enrolled students in the treatment than control group).

## Measures

**Demographic characteristics.** All demographic characteristics, as well as other measures, were based on students' self-report, as set forth above and in Table 1.

**Tolerance of homosexuality and gender nonconformity.** I created a continuous composite variable measuring students' self-reported tolerance for homosexuality and gender nonconformity, with more positive values representing higher levels of tolerance. Because I used both unipolar and bipolar response scales, I converted the scores to a 0-1 scale, where 0 represents completely intolerant and 1 represents completely tolerant (with respect to the items on the scale). Seven of the items had unipolar response scales, e.g. "How bothered would you be if you discovered that a gay or lesbian classmate had a crush on you?" with the response options "extremely bothered," "quite bothered," "somewhat bothered," "slightly bothered" and "not bothered at all." Four of the items had bipolar response scales, e.g., "How comfortable or uncomfortable would you be if a male friend told you he was gay?" with the response options "totally comfortable," "somewhat comfortable," "slightly comfortable," "neither comfortable nor uncomfortable," "slightly uncomfortable," "somewhat uncomfortable," and "totally uncomfortable." One item was a two part branching question, with the first question assessing students' comfort level changing in the locker room generally, and the follow-up item assessing whether the student would be more comfortable or uncomfortable if a gay or lesbian classmate was

present. This item was assessed slightly differently than the others, with responses of “much more comfortable” to “neither more nor less comfortable or uncomfortable” being compressed to a single score of 1, and responses denoting degrees of discomfort being spread between .67 and 0. The initial item measuring general comfort changing in the locker room was not included in assessing students’ overall tolerance.<sup>13</sup>

Prior to commencement of the study, the scale underwent a rigorous development process, following Gehlbach and Brinkworth’s (2011) framework. This process included a comprehensive literature review, after which I drafted survey items and engaged in open-ended-interviews, expert review and cognitive pre-testing of the items. I subsequently engaged in three rounds of pilot testing in order to ensure the reliability and validity of the scale. Both principal components analysis and exploratory factor analysis conducted support the existence of a single construct (with one factor and one principal component). With respect to reliability, pilot testing of the scale produced a Cronbach’s  $\alpha$  of .86.

**Post-experiment assessment measures.** In addition to the items included in the initial questionnaire, a number of new items were included in the questionnaire administered at the conclusion of the experiment. First, students

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<sup>13</sup> For purposes of assessing student tolerance, I determined that students who were “neither more nor less comfortable or uncomfortable” based on the presence of an LGB peer were as tolerant as those who were “much more comfortable” or “slightly more comfortable.” The vast majority of students receiving a score of 1 for this item chose the neutral midpoint, i.e., “neither more nor less comfortable or uncomfortable.”

were asked whether they had had additional exposures to LGB-related subjects, e.g., books or television shows with LGB characters, discussions with family or friends about LGB people, participation in school-based LGB-related programming, etc. This inquiry was included to measure the extent to which changes in attitudes of students in both the control and treatment groups might be attributable to exposure to LGB content other than the intervention. In addition, a supplemental question designed to serve as an additional behavioral measure assessing changes in tolerance was included in the final questionnaire, i.e., I allowed students to elect whether a donation would be given to a generic school charity or to the school's gay/straight alliance as a token of my appreciation for their participation in the study.

## **Experiment**

During the beginning of the academic year, the questionnaire was administered to students in all 32 of the homerooms in the treatment and control groups in order to assess students' baseline tolerance. After this administration, one homeroom was removed from the study due to teachers discomfort with the subject matter and their resistance to their students' participation, resulting in 15 homerooms in the treatment group. Following initial administration of the questionnaire, I visited each of the homerooms in the treatment group three times between November 2013 and April 2014 to administer the questionnaire. These three additional administrations constituted the mere exposure effect experiment, as this provided participants with up to three additional exposures to the

questionnaire, and consequently up to three additional opportunities to increase their familiarity and liking for the subject of the questionnaire, i.e., their LGBTQ peers. At the end of the academic year, approximately eight months after the study commenced, the questionnaire, with the additional items discussed above, was administered a final time to assess changes, if any, in students' attitudes about homosexuality and gender nonconformity as a result of participation in the intervention.

### **Missing Data**

In addition to the students in the homeroom that was removed from the study following initial administration, not all students in the treatment and control groups were present during both the initial and final administrations of the questionnaire. To preserve the use of data from students in the treatment group who were not present during the initial administration of the questionnaire but who were present during the second administration, the score based on this second administration of the questionnaire is used as their baseline tolerance score. Students in the treatment group who were not present for either the first or second administrations are not included in the baseline tolerance composite, as I did not consider the space between administration of the questionnaire in January/February or March/April and the final administration in May/June sufficient for an assessment of the effectiveness of the mere exposure effect intervention due to limitations on the number of exposures. For students in the treatment group, the breakdown of available data was as follows: initial score only

( $N=112$ ); final score only ( $N=22$ ); and both pre- and post-intervention scores available ( $N=205$ ). The breakdown of availability of scores for the control group was as follows: initial score only ( $N=60$ ); final score only ( $N=46$ ); and both pre- and post-intervention scores available ( $N=216$ ).<sup>14</sup>

Some students elected not to answer all of the items that formed a part of the tolerance scale. Although a failure to include demographic data was not a basis for exclusion from the analysis, only those students who completed more than 1/3 of the items, i.e., at least 5 of the 12 items that formed the tolerance scale, were included in the analysis, as I determined that a true estimate of their tolerance could not be made without a sufficient number of responses provided, particularly because of the mix between items assessing tolerance of homosexuality and those assessing tolerance of gender nonconformity, as well as specific items relating only to male or female homosexuality or gender nonconformity. Six students were excluded from the analysis due to failure to respond to a sufficient number of tolerance items.

## **Analysis**

In order to answer my research question, I conducted multilevel modeling using STATA software, with students nested within the 32 homerooms

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<sup>14</sup> There are a number of reasons for the absence of a significant amount of student data. For all students, absence from school, tardiness, as well as a number of school-related commitments taking place during homeroom may have resulted in their non-participation during one or more administration dates. For students in the treatment group who had completed the survey up to four times during the academic year, potential exhaustion with the questionnaire may have resulted in their reluctance to complete it during the final administration.



participating in the study. I elected to use multilevel modeling due to the assignment of students to homerooms for four years, as I hypothesized that this might result in differences at the homeroom as well as individual levels, with a particular focus on differences based on students' demographic characteristics.

For my inquiry, whether the offer of the intervention impacted students' tolerance of homosexuality and gender nonconformity, the predictor of interest was random assignment to the intervention (*TREATMENT*). The following equation describes a two-level multilevel model with classroom fixed effects:

$$OUTCOME\_TOLERANCE_{ij} = \beta_0 + \beta_1 TREATMENT_{ij} + \beta_2 BASE\_TOLERANCE_{ij} + \beta_j X_{ij} + \varepsilon_{ij} + \nu_l$$

Where  $X$  represents a vector of selected student characteristics serving as control predictors,  $\varepsilon$  is a student-level residual and  $\nu$  is a classroom-level residual, and:

$\beta_0$  = intercept,

$\beta_1$  = main effect of assignment to the treatment group,

$\beta_2$  = main effect of student's baseline tolerance of homosexuality and gender non-conformity, and

$\beta_j$  = main effect of selected controls.

In this model,  $\beta_1$  is the parameter of interest, as it measures whether participation in the intervention impacts tolerance for homosexuality and gender non-conformity. If parameter  $\beta_1$  is statistically significant and positive, then, in the population of students at the research site, repeated exposures to a questionnaire

assessing students' attitudes about homosexuality and gender non-conformity will increase students' tolerance and acceptance of homosexuality and gender non-conformity.

## **Results and Discussion**

I examined the effect of the offer of the intervention on students' baseline tolerance, hypothesizing that students who participated would become more tolerant than those who did not, although those who displayed initial low levels of tolerance might become less tolerant over the course of the experiment. In addition, previous analyses of the student data conducted following initial administration of the survey revealed that demographic characteristics including sex, race, ESL enrollment, religion, sexual orientation, having LGB friends, the number of LGB friends one had, and having parents from the Caribbean would have an impact on students' tolerance. Thus, in building my model, I hypothesized that these might be variables of interest. I also hypothesized that those students who had had exposure to LGB-related subject matter other than the intervention would be more tolerant, and that higher numbers of exposures would be positively associated with higher levels of tolerance. The final fitted model includes the following variables of interest: baseline tolerance, assignment to the treatment group, sex, race, the number of LGB friends a student had, and the number of exposures to LGB-related subject matter other than the intervention. Baseline tolerance accounted for the largest portion of the students' tolerance at the end of the experiment, while assignment to the treatment had a small but negative

association with students' tolerance at the end of the experiment. In addition, it appears from the model that the vast majority of variability in tolerance occurred at the individual level, rather than at the level of homeroom. See Table 2 for the taxonomy of models.

Mean pre- and post-intervention tolerance levels are relatively consistent across the treatment and control groups, although the control group overall exhibited higher mean tolerance than the treatment group both before ( $M=0.78$  versus  $0.74$ ) and after ( $M=0.77$  versus  $0.72$ ) the intervention, as set forth in Figures 1 and 2. These differences may be attributable to the demographic differences between the treatment and control groups. As described in Table 1, the treatment group has a statistically significantly greater number of black, Muslim, ESL-enrolled and free lunch recipient students than the control group, and also has statistically significantly fewer non-religious students than the control group. Previous analyses of the population at the school suggest that membership in the first four demographic subgroups has been associated with lower levels of tolerance, while being nonreligious is associated with higher levels of tolerance. For example, in the sample, black students were less tolerant ( $\beta=0.65$ ,  $SE=0.01$ , CI:  $0.63, 0.68$ ) than their white counterparts ( $\beta=0.84$ ,  $SE=0.01$ , CI:  $0.81, 0.86$ ), ESL-enrolled students were much less tolerant ( $\beta=0.63$ ,  $SE=0.01$ , CI:  $0.60, 0.66$ ) than their non-English language learner peers ( $\beta=0.79$ ,  $SE=0.01$ , CI:  $0.77, 0.80$ ), and non-religious students were more tolerant ( $\beta=0.82$ ,  $SE=0.01$ , CI:  $0.80, 0.84$ )

than their religious counterparts ( $\beta=0.72$ ,  $SE=0.01$ , CI: 0.70, 0.74), particularly their Muslim peers ( $\beta=0.62$ ,  $SE=0.02$ , CI: 0.57, 0.66) (Mundy-Shephard, 2015).

Finally, as discussed above, an additional behavioral measure was included to assess whether the intervention had an impact on student attitudes. Specifically, I assessed whether assignment to the treatment group was associated with a greater likelihood of electing that a token contribution be made to the school's GSA, rather than to a generic school group. Using multilevel logistic regression analysis, I created a taxonomy of models in which the variables of interest included baseline tolerance, assignment to the treatment, sex, and the number of LGB exposures a student had over the course of the academic year. In this model, assignment to the treatment had a slight negative association with a student's decision to contribute to the GSA, although only statistically significant at the 0.1 level. See Table 3 for a taxonomy of models. This result is consistent with my analysis, i.e., factors other than the intervention – particularly students' baseline tolerance – were largely responsible for predicting students' attitudes towards LGB people at the conclusion of the study.

I suspect that there are a number of possible explanations for the slight negative impact of the intervention on students' outcome tolerance. As discussed above, a higher percentage of the students in the treatment group belonged to demographic subgroups that have exhibited lower levels of tolerance. Previous research involving the mere exposure effect suggests that for individuals with initial negative attitudes towards a stimulus, repeated exposures to that stimulus

may increase those negative attitudes. This appears to have been the case here. Moreover, although not intended to operate as a “threat condition,” it may be that the questionnaire activated a sense of threat in those students with pre-existing anti-LGB bias. Items forming part of the tolerance scale addressed the level of comfort a student might feel changing in the locker room with a lesbian or gay classmate present, being the object of a crush by a lesbian or gay classmate, or attending an event where most of the attendees were gay or lesbian. Students with initial anti-LGB bias may have perceived these scenarios as threatening, and this threat condition may have been activated for them with each subsequent exposure to the questionnaire. It may be the case that more effort must be made to create an optimal, non-threatening environment prior to the introduction of the stimulus.

In addition to the possible activation of a threat condition, for some of the participants, the type of stimulus may account for the lack of a positive impact. The majority of mere exposure experiments have involved visual or auditory stimuli, and exposure to these stimuli has been brief: seconds or fractions thereof (Bornstein, 1989). To the extent that images were generated at all, they were student-generated mental images of the scenarios about which they were asked to opine, resulting in less control over the nature of the images than is usual in mere exposure experiments. There may also have been a distancing between LGB people and the questionnaire itself. Previous mere exposure experiments examining attitudes towards people have used photographic images. A questionnaire may not engage a participant in the same way, and may in fact

engage them in experiences from their own lives that have a much more personal impact upon them. However, unlike with experiments using faces of members of different racial groups to assess social approachability, the use of neutral photographs of individual LGB people is not possible as a means of prejudice reduction through the mere exposure effect because there are not photographic images of LGB people that are immediately recognizable as LGB people. Thus, questions remain both as to the effectiveness of a questionnaire in activating the mere exposure effect, and the conditions under which the mere exposure effect may be used to increase liking for LGB people.

Finally, for study participants with higher levels of baseline tolerance, there may have been a ceiling effect, resulting in less of an impact of the intervention for these participants. For these reasons, the failure of the intervention to be positively associated with increased tolerance, while disappointing, is not entirely surprising.

### **Implications**

While promising in many other contexts, the mere exposure effect may not be an effective means of reducing anti-LGB bias. The usual vehicle for prejudice reduction using the mere exposure effect – photographic images – is not available here, and it is unclear whether a questionnaire is an appropriate stimulus for mere exposure effect experiments. To the extent that the mere exposure effect was activated in this experiment, it appears to have been most effective in increasing the antipathy of intolerant students, consistent with previous studies that suggest

that the mere exposure effect can exacerbate negative attitudes, particularly when those individuals feel threatened. It would therefore appear that casual exposure to a stimulus in a way that does not properly contextualize the study by manipulating the condition in order to eliminate threat may not be the most effective means of prejudice reduction among those most in need of intervention.

One possibility for assessing the impact of the mere exposure effect in order to reduce prejudice against LGB people may be the use of photographic images, either separately or in conjunction with questionnaires. While the use of faces of LGB individuals may not be possible due to an inability to easily identify them as LGB – unlike the use of other-race faces – perhaps multiple exposures to images of same-sex couples might produce the desired effect of prejudice reduction. Given the support that the vast majority of young adults have exhibited for same-sex marriage (Langer Research Associates, 2013), it seems possible that this may be a particularly fruitful direction for future research. Another possibility is multiple photographic exposures to the scenarios presented in the questionnaire, e.g., a boy cheerleader, a girl on the wrestling team, a gay male couple slow dancing at a school dance. In this way, the experimenter maintains more control over the images, which also lend themselves to more frequent, brief repetition, consistent with prior mere exposure effect research. Use of images in this way may also be a more fruitful means of stimulating the cognitive changes such as reduced uncertainty and increased perceptual fluency that have previously been exposed in mere exposure effect studies (Campbell & McKeen, 2011).

Another promising direction for future research is the use of LGB-themed materials. My study suggests that for students in both the treatment and control group, exposure to LGB-themed materials, *e.g.*, books, television shows, discussions about LGB people with friends, and attendance of the school's National Coming Out Day assembly are all positively associated with increased tolerance. Thus, even among students who are negatively predisposed towards LGB people, other more meaningful types of exposures – including through LGB-inclusive curricular materials – may lead to greater tolerance.



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## Appendix

Table 1. Student Demographic Characteristics by Condition

	Treatment		Control		Difference Tests ( $\chi^2$ test)
	M (SE)	95% CI	M (SE)	95% CI	
Sex (Male)	.54 (.03)	.48, .59	.48 (.03)	.43, .54	1.97
Asian	.11 (.02)	.08, .15	.12 (.02)	.09, .16	0.22
Black	.30 (.03)	.25, .35	.21 (.02)	.17, .26	5.68*
Latino	.09 (.02)	.06, .12	.11 (.02)	.07, .14	0.54
Multiracial	.15 (.02)	.11, .19	.18 (.02)	.13, .22	0.65
White	.32 (.03)	.27, .37	.35 (.03)	.29, .40	0.58
U.S./Canada	.53 (.03)	.47, .59	.57 (.03)	.51, .63	0.94
Africa	.10 (.02)	.06, .13	.09 (.02)	.06, .13	0.00
Asia	.09 (.02)	.06, .12	.12 (.02)	.08, .15	1.37
Caribbean	.23 (.02)	.18, .28	.19 (.02)	.14, .23	1.85
Europe	.09 (.02)	.06, .12	.11 (.02)	.07, .14	0.41
Latin America	.12 (.02)	.08, .15	.15 (.02)	.11, .19	1.41
Non-Religious	.33 (.03)	.28, .38	.43 (.03)	.37, .48	6.66*
Buddhist	.03 (.01)	.01, .05	.03 (.01)	.01, .05	0.13
Catholic	.10 (.02)	.07, .13	.13 (.02)	.09, .17	1.53
Christian	.41 (.03)	.35, .46	.35 (.03)	.30, .41	1.75
Jewish	.09 (.02)	.06, .12	.08 (.02)	.05, .11	0.05
Muslim	.10 (.02)	.07, .14	.06 (.01)	.03, .09	4.00*
Free Lunch	.49 (.03)	.44, .55	.37 (.03)	.31, .42	9.17**
ESL-enrolled	.23 (.02)	.18, .27	.16 (.02)	.11, .20	5.20*
Straight	.88 (.02)	.85, .92	.86 (.02)	.82, .90	0.78
Gay Friends	.64 (.03)	.59, .70	.73 (.03)	.68, .78	5.36*

Key: ~  $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Table 2. Estimates and standard errors for outcomes

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	0.747*** (0.010)	0.156*** (0.024)	0.181*** (0.025)	0.234*** (0.028)	0.261*** (0.029)	0.253*** (0.030)	0.244*** (0.029)
Baseline		0.797*** (0.031)	0.786*** (0.031)	0.751*** (0.031)	0.730*** (0.032)	0.707*** (0.034)	0.672*** (0.036)
Tolerance							
Assignment			-0.036** (0.012)	-0.033** (0.012)	-0.030** (0.011)	-0.030** (0.011)	-0.033** (0.011)
to Treatment							
Male				-0.051*** (0.012)	-0.057*** (0.012)	-0.050*** (0.012)	-0.044*** (0.012)
Black					-0.037** (0.014)	-0.031* (0.014)	-0.024~ (0.014)
Gay Friend						0.011** (0.004)	0.009* (.0004)
Number							
# of LGB							0.012** (0.004)
Exposures							
Residuals							
Room	0.026 (0.017)	$1.21 \times 10^{-9}$ ( $5.23 \times 10^{-9}$ )	$1.91 \times 10^{-9}$ ( $8.29 \times 10^{-9}$ )	$1.50 \times 10^{-13}$ ( $6.12 \times 10^{-13}$ )	$3.08 \times 10^{-9}$ ( $0.11 \times 10^{-4}$ )	$2.59 \times 10^{-13}$ ( $1.42 \times 10^{-9}$ )	$3.38 \times 10^{-12}$ ( $1.04 \times 10^{-9}$ )
Level							
Person	0.205 (0.007)	0.121 (0.004)	0.120 (0.004)	0.117 (0.004)	0.113 (0.004)	0.113 (0.004)	0.111 (0.004)
Level							

Key: ~  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 3. Estimates and standard errors for selection of donation to GSA versus general student group

	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-0.718*** (0.128)	-5.572*** (0.810)	-5.324*** (0.818)	-4.359*** (0.852)	-4.272*** (0.839)
Baseline		6.094*** (0.958)	6.024*** (0.959)	5.228*** (0.965)	4.053*** (0.998)
Tolerance					
Assignment to			-0.424~ (0.241)	-0.363 (0.245)	-0.453~ (0.251)
Treatment					
Male				-0.717** (0.252)	-0.652* (0.256)
# of LGB					0.281**
Exposures					(0.084)
Residuals					
Room Level	0.373 (0.180)	0.029 (1.987)	$1.06 \times 10^{-11}$ (.356)	$1.71 \times 10^{-12}$ (.326)	$2.05 \times 10^{-9}$ (.316)

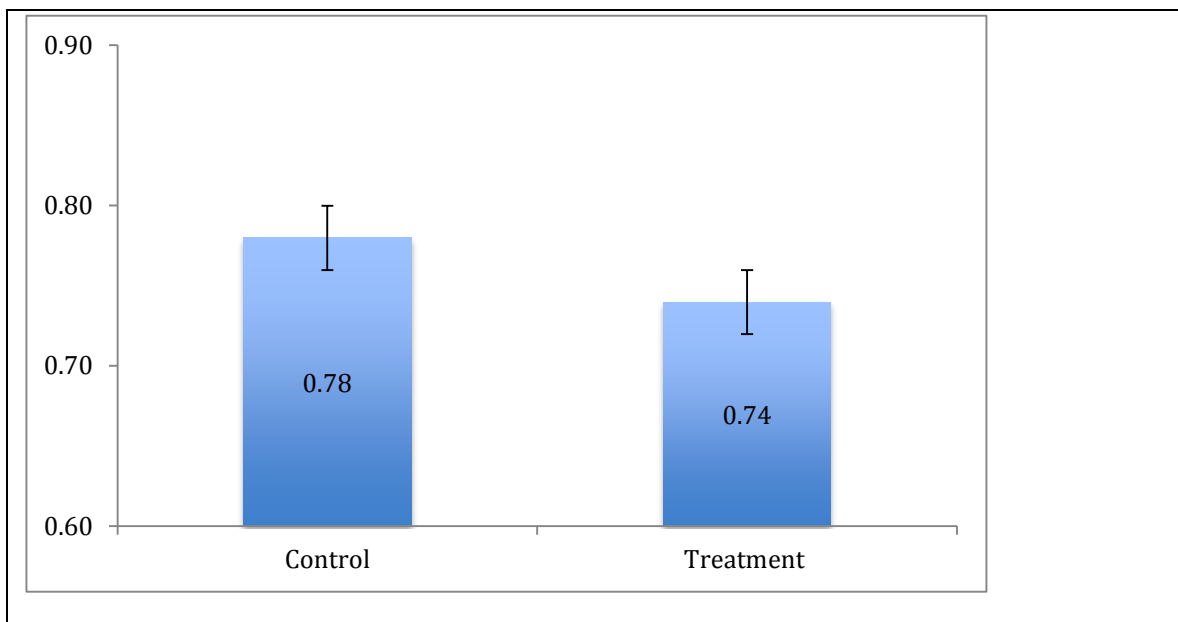


Figure 1. Baseline Tolerance by Condition

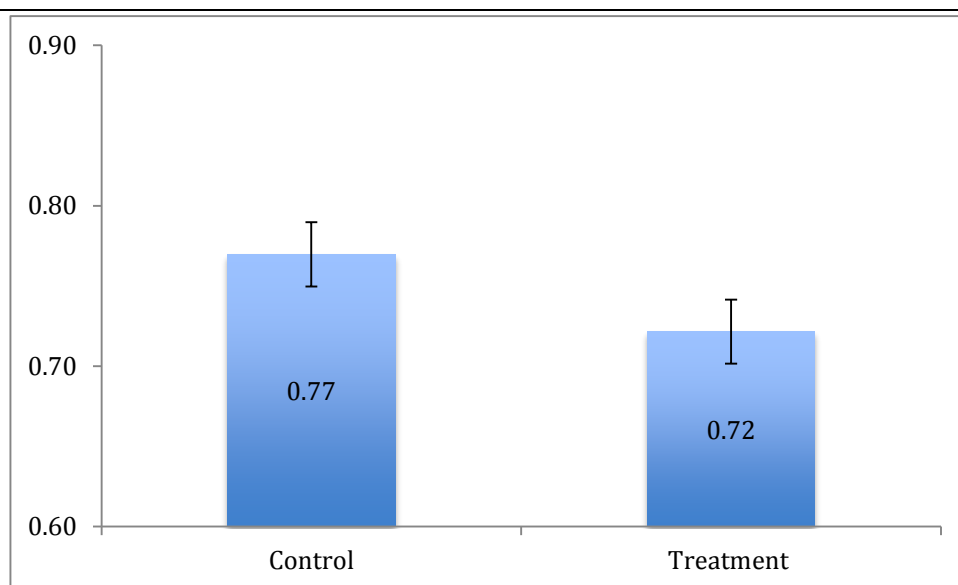


Figure 2. Outcome Tolerance by Condition

## **Conclusion**

Despite progress that has been made in recent years in providing greater protections for sexual minorities from discrimination, sexual minority youth continue to face a number of challenges in schools, including peer victimization and exclusion. My findings in Article 1 suggest that certain subgroups of students may be in far greater need of intervention than others in order to create more accepting, inclusive school environments for sexual minority youth. This underscores the importance of developing and maintaining educational settings that actively promote respect for difference, and that encourage all students to embrace a culture of respect and inclusion. The results of my research also underscore the important role that intergroup contact has on the attitudes adolescents have about their lesbian, gay, bisexual and gender nonconforming peers, and how essential it is to create educational environments in which heterosexual students have the opportunity to befriend their LGB peers. My findings also suggest that sexual minority youth who belong to certain demographic groups, particularly recent immigrants, may be at particular risk for peer victimization and rejection due to more negative perceptions about LGB identity. Preventive measures must be taken to minimize this risk, including targeted, culturally appropriate interventions focused on prejudice reduction.

Given that the school in which my research was conducted is much more racially and socioeconomically diverse than most United States schools, replication in more racially and socioeconomically homogeneous school settings



would be valuable to determine if the general patterns of tolerance found in Article 1 are consistent in less diverse settings. In addition, several questions raised by my findings would benefit from qualitative inquiry, including the reasons why students from certain demographic groups possess particularly low levels of tolerance. Further investigation is also necessary to understand the relationship between first- and second-generation immigrant identity and tolerance. Finally, future research should address how to counteract negative messages adolescents receive – at home and from peers – about homosexuality and gender nonconformity, and should take into account how such tolerance-building interventions may vary in effectiveness based on the demographic characteristics of the adolescents participating.

While the interventions discussed in Articles Two and Three had little impact on the attitudes of the students in the respective treatment groups about homosexuality and gender nonconformity, I believe that both interventions would benefit from further exploration. With respect to the discussion-based intervention, as is evidenced from the distinction between those who participated and those who declined, the majority of those who declined fell into demographic categories associated with lower levels of tolerance, i.e., those most in need of intervention. A tolerance-building activity that is voluntary is unlikely to impact these students. Moreover, prior research suggests that individuals with pre-existing bias towards an out-group may be unwilling or unable to engage in perspective-taking about

that group. In such instances, other types of activities designed to build tolerance and reduce prejudice may be appropriate.

While the mere exposure effect did not appear to have the desired impact in reducing prejudice in my study, future inquiry may focus on the use of photographic images in connection with questionnaires, rather than text-only questionnaires. While the use of faces of LGB individuals may not be possible due to an inability to easily identify them as LGB – unlike the use of other-race faces – perhaps multiple exposures to images of same-sex couples might produce the desired effect of prejudice reduction. In a related vein, multiple photographic exposures to the scenarios presented in the questionnaire, e.g., a boy cheerleader, a girl on the wrestling team, a gay male couple slow dancing at a school dance, might allow the researcher to maintain more control over the images, which also lend themselves to more frequent, brief repetition, consistent with prior mere exposure effect research.

As is evident from participants in both of the treatment groups, exposure to LGB-themed materials, e.g., books, television shows, discussions about LGB people with friends and family, and attendance of the school's National Coming Out Day assembly were all positively associated with increased tolerance. Thus, to the extent that more involved interventions, such as one-on-one discussions or multiple exposures to LGB-themed questionnaires and photographs, are not possible or may be unsuitable due to pre-existing bias, other types of exposures – including through LGB-inclusive curricular materials – may be effective means

of prejudice reduction. Future research addressing adolescent attitudes about homosexuality and gender nonconformity should therefore focus on the impact of mandatory one-on-one discussions about sexual minorities, as well as non-discussion based interventions, particularly geared toward demographic subgroups that may be more intolerant, as well as the incorporation of LGB-inclusive curricular materials. These may all prove to be promising directions for creating more tolerant and accepting school environments for sexual minority students.

## **Appendix A. Questionnaire**

### **Attitudes on Homosexuality and Gender Non-Conformity**

This research survey is about high school students' attitudes about homosexuality and gender identity. Depending on the answers you provide, the information you give will be used to improve understanding of these attitudes among young people like yourself. The survey should take about 10 minutes to complete, but please take all the time that you need. DO NOT write your name on this survey. The answers you give will be kept private and confidential. Answer the questions as honestly as possible. Completing the survey is voluntary, and you may refuse to participate or stop answering without any penalty or loss of benefits to which you are otherwise entitled. Whether or not you answer the questions will not affect your grade. If you are not comfortable answering a question, just leave it blank. By returning your completed survey to me, you will show that you consent to taking the survey. The questions that ask about your background will be used only to describe the types of students completing this survey. The information will not be used to find out your name. No names will ever be reported. No risks are expected from completing this survey. Make sure to read every question and to mark all answers that apply. When you are finished, please return the survey to me.

Thank you very much for your help. If you have any questions, concerns or complaints, please contact me:

Adrienne Mundy-Shephard  
Doctoral Student  
Harvard Graduate School of Education  
718-541-8430  
amm092@mail.harvard.edu

Whom to contact about your rights in this research, for questions, concerns, suggestions, or complaints that are not being addressed by the researcher, or research-related harm: Committee on the Use of Human Subjects in Research at Harvard University, 1414 Massachusetts Avenue, Second Floor, Cambridge, MA 02138. Phone: 617-496-2847. Email: cuhs@fas.harvard.edu.

I can be myself at this school.

- ☐ Almost always
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little bit of the time
- ☐ Almost never

I feel like I belong at this school.

- ☐ Almost always
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little bit of the time
- ☐ Almost never

What sports teams, if any, have you participated in while attending your school?

What extracurricular activities, if any, have you participated in while attending your school?

How comfortable or uncomfortable would you be changing in a locker room at school?

- ☐ Totally comfortable
- ☐ Somewhat comfortable
- ☐ Slightly comfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Slightly uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Totally uncomfortable

Would you be more comfortable or uncomfortable if a gay or lesbian classmate was in the locker room while you were changing?

- ☐ Much more comfortable
- ☐ Somewhat more comfortable
- ☐ Slightly more comfortable
- ☐ Neither more or less comfortable or uncomfortable
- ☐ Slightly more uncomfortable
- ☐ Somewhat more uncomfortable
- ☐ Much more uncomfortable

How bothered would you be if you discovered that a gay or lesbian classmate had a crush on you?

- ☐ Extremely bothered
- ☐ Quite bothered
- ☐ Somewhat bothered
- ☐ Slightly bothered
- ☐ Not bothered at all

How comfortable or uncomfortable would you be at an event where most of the people were gay or lesbian?

- ☐ Totally comfortable
- ☐ Somewhat comfortable
- ☐ Slightly comfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Slightly uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Totally uncomfortable

How bothered would you be if you saw a lesbian (gay female) couple kissing at school?

- ☐ Not bothered at all
- ☐ Slightly bothered
- ☐ Somewhat bothered
- ☐ Quite bothered
- ☐ Extremely bothered

How strange do you think it would be for a female classmate to compete on the school wrestling team?

- ☐ Very strange
- ☐ Strange
- ☐ Somewhat strange
- ☐ Slightly strange
- ☐ Not strange at all

If a gay male classmate invited you to a party at his house, how willing or unwilling would you be to go?

- ☐ Totally willing
- ☐ Somewhat willing
- ☐ Slightly willing
- ☐ Neither willing nor unwilling
- ☐ Slightly unwilling
- ☐ Somewhat unwilling
- ☐ Totally unwilling

How weird would you think it was if a male classmate wore pink lip gloss at school?

- ☐ Very weird
- ☐ Weird
- ☐ Somewhat weird
- ☐ Slightly weird
- ☐ Not weird at all

How bothered would you be if you saw a gay male couple slow-dancing together at a school dance?

- ☐ Extremely bothered
- ☐ Quite bothered
- ☐ Somewhat bothered
- ☐ Slightly bothered
- ☐ Not bothered at all

How weird would you think it was if a male classmate had no male friends?

- ☐ Not weird at all
- ☐ Slightly weird
- ☐ Somewhat weird
- ☐ Weird
- ☐ Very weird

How comfortable or uncomfortable would you be if a male friend told you he was gay?

- ☐ Totally comfortable
- ☐ Somewhat comfortable
- ☐ Slightly comfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Slightly uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Totally uncomfortable

How strange do you think it would be if a male classmate was captain of the cheerleading squad?

- ☐ Very strange
- ☐ Strange
- ☐ Somewhat strange
- ☐ Slightly strange
- ☐ Not strange at all

How old are you? \_\_\_\_\_

What is your sex?

- ☐ Male
- ☐ Female

A transgender person is someone whose biological sex does not match the way they think or feel about themselves. Are you transgender?

- ☐ No, I am not transgender
- ☐ Yes. I was born female but I think of myself as really a boy or man
- ☐ Yes. I was born male, but I think of myself as really a girl or woman
- ☐ Yes. I was born male or female, but I think of myself in some other way
- ☐ I do not know what this question is asking
- ☐ I do not know if I am transgender

What grade are you in?

- ☐ 9th
- ☐ 10th
- ☐ 11th
- ☐ 12<sup>th</sup>

What is your race? (Please check ALL that apply.)

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black
- ☐ Hispanic/Latino
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White
- ☐ Other: \_\_\_\_\_

In what country or countries were your parents (or legal guardians) born?

Do people in your home speak a language other than English?

- ☐ Yes
- ☐ No

If yes, what language(s) other than English do people in your home speak?

If yes, how often do the people in your home speak a language other than English?

- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the Time
- ☐ Always

Have you ever been enrolled in English as a Second Language (ESL) classes?

- ☐ Yes
- ☐ No



What most closely describes your religious beliefs? (Please check ALL that apply.)

- ☐ Agnostic
- ☐ Atheist
- ☐ Buddhist
- ☐ Christian
- ☐ Evangelical Christian
- ☐ Hindu
- ☐ Jewish
- ☐ Muslim
- ☐ Protestant Christian
- ☐ Roman Catholic
- ☐ No religion
- ☐ Other religion: \_\_\_\_\_

Do you qualify for (or have you ever received) free or reduced lunch?

- ☐ Yes
- ☐ No

Which of the following best describes you?

- ☐ Heterosexual (straight)
- ☐ Gay or lesbian
- ☐ Bisexual
- ☐ Not sure
- ☐ Asexual
- ☐ Other: \_\_\_\_\_

Do you have any friends who identify as openly gay, lesbian or bisexual?

- ☐ Yes
- ☐ No

If yes, how many openly gay, lesbian or bisexual friends do you have?

- ☐ One
- ☐ Two
- ☐ Three
- ☐ Four or more

Thank you again for your participation! Please contact me at amm092@mail.harvard.edu if you have any questions. You may also feel free to include questions in the space below.

## **Appendix B. Discussion Protocol**

### **Discussion Questions**

#### **I. Describing Gay, Lesbian and Bisexual People**

1. Thinking generally, please write on the paper the first 5 words or phrases that come to mind when you think of typical gay guys.
  - a. Why did you pick these words?
  - b. What are these gay guys like?
  - c. What race are they?
  - d. What are their lives like?
2. Let's do the same for lesbians. Thinking generally, please write on the paper the first 5 words or phrases that come to mind when you think of typical lesbians.
  - a. Why did you pick these words?
  - b. What are these lesbians like?
  - c. What race are they?
  - d. What are their lives like?
3. Let's do the same for bisexuals. Thinking generally, please write on the paper the first 5 words or phrases that come to mind when you think of typical bisexuals.
  - a. Why did you pick these words?
  - b. What are these bisexuals like?
  - c. What race are they?
  - d. What are their lives like?

#### **II. Knowing Gays, Lesbians, and Bisexual People In General**

1. Do you recall the first time you learned that there are gay, lesbian and bisexual people? Tell me about that.
2. Do you remember the first time you met a gay, lesbian or bisexual person or realized that someone you knew was gay, lesbian or bisexual? Tell me about that.
  - a. What was that like for you?
  - b. How did it come up?
  - c. How did you know they were gay, lesbian or bisexual?

- d. What was that person's relationship to you?
  - e. Did you talk about it with that person?
  - f. What did you say to that person?
  - g. What did that person say to you?
  - h. How did it affect your relationship with that person, if at all?
  - i. How did it affect your understanding of that person?
  - j. How did it affect your understanding of what it means to be gay, lesbian or bisexual?
  - k. What was the race of the person?
  - l. Do you think it might be more or less difficult to be a gay, lesbian or bisexual person of that race?
3. How does your family talk about gay, lesbian or bisexual people?
- a. Do you ever talk to your parents or the adults raising you in your household about gay, lesbian or bisexual people? Tell me about that.
  - b. If you have any brothers, sisters or cousins, do you ever talk to them about gay, lesbian or bisexual people? Tell me about that.
  - c. Do you talk to your friends or classmates about gay, lesbian or bisexual people? Tell me about that.
  - d. [If they did not talk about gay, lesbian, or bisexual people with any of the above **Probe:** What stopped you from doing so?]

### **III. Being Around Gay, Lesbian and Bisexual People**

- 1. Have you ever been to an event or a place where most of the people are gay, lesbian, or bisexual?
  - a. (If yes): Tell me about it. (If no): How do you imagine it would be?

### **IV. Lesbian, Gay or Bisexual Friends**

- 1. Do you have any very good friends who are openly gay, lesbian, or bisexual?
  - a. When you say a friend is openly gay, lesbian, or bisexual, what do you mean?
  - b. Does that mean that they have told everyone they are gay, lesbian, or bisexual, or everyone just kind of "knows" they are gay, lesbian, or bisexual, or they have told some people and not others, or what?
  - c. What race are the friends that you have identified as gay, lesbian, or bisexual?

2. Do you have any very good friends who you think are gay, lesbian or bisexual, but they are not open about it?
  - a. How do you know they are gay, lesbian, or bisexual, or why do you think they are?
  - b. Why do you suppose they have not told anyone?
  - c. What do you suppose this is like for them?
  - d. What race(s) are the friends that you have identified as not being open about their sexual orientation?

**V. Sports**

1. Do you participate in any sports teams? Which ones?
2. Do you and your teammates ever talk about gay, lesbian or bisexual people? Tell me about that.

**VI. Extracurricular Activities**

1. Do you participate in any other extracurricular activities? Which ones?
2. Do you and your classmates in these activities ever talk about gay, lesbian or bisexual people? Tell me about that.

**VII. Closing**

1. Is there anything I raised at any point that you wanted to revisit and expand on?
2. Is there anything you thought I would ask, but did not? And do you want to say anything about that?
3. Is there anything you want to ask me?

## **Appendix C. Final Questionnaire**

### **Attitudes on Homosexuality and Gender Non-Conformity**

This research survey is about high school students' attitudes about homosexuality and gender identity. Depending on the answers you provide, the information you give will be used to improve understanding of these attitudes among young people like yourself. The survey should take about 5 to 10 minutes to complete, but please take all the time that you need. DO NOT write your name on this survey. The answers you give will be kept private and confidential. Answer the questions as honestly as possible. Completing the survey is voluntary, and you may refuse to participate or stop answering without any penalty or loss of benefits to which you are otherwise entitled. Whether or not you answer the questions will not affect your grade. If you are not comfortable answering a question, just leave it blank. By returning your completed survey to me, you will show that you consent to taking the survey. The questions that ask about your background will be used only to describe the types of students completing this survey. The information will not be used to find out your name. No names will ever be reported. No risks are expected from completing this survey. Make sure to read every question and to mark all answers that apply. When you are finished, please return the survey to me.

Thank you very much for your help. If you have any questions, concerns or complaints, please contact me:

Adrienne Mundy-Shephard  
Doctoral Student  
Harvard Graduate School of Education  
718-541-8430  
amm092@mail.harvard.edu

Whom to contact about your rights in this research, for questions, concerns, suggestions, or complaints that are not being addressed by the researcher, or research-related harm: Committee on the Use of Human Subjects in Research at Harvard University, 1414 Massachusetts Avenue, Second Floor, Cambridge, MA 02138. Phone: 617-496-2847. Email: cuhs@fas.harvard.edu.

I can be myself at this school.

- ☐ Almost always
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little bit of the time
- ☐ Almost never

I feel like I belong at this school.

- ☐ Almost always
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little bit of the time
- ☐ Almost never

What sports teams, if any, have you participated in while attending your school?

What extracurricular activities, if any, have you participated in while attending your school?

How comfortable or uncomfortable would you be changing in a locker room at school?

- ☐ Totally comfortable
- ☐ Somewhat comfortable
- ☐ Slightly comfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Slightly uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Totally uncomfortable

Would you be more comfortable or uncomfortable if a gay or lesbian classmate was in the locker room while you were changing?

- ☐ Much more comfortable
- ☐ Somewhat more comfortable
- ☐ Slightly more comfortable
- ☐ Neither more or less comfortable or uncomfortable
- ☐ Slightly more uncomfortable
- ☐ Somewhat more uncomfortable
- ☐ Much more uncomfortable

How bothered would you be if you discovered that a gay or lesbian classmate had a crush on you?

- ☐ Extremely bothered
- ☐ Quite bothered
- ☐ Somewhat bothered
- ☐ Slightly bothered
- ☐ Not bothered at all

How comfortable or uncomfortable would you be at an event where most of the people were gay or lesbian?

- ☐ Totally comfortable
- ☐ Somewhat comfortable
- ☐ Slightly comfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Slightly uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Totally uncomfortable

How bothered would you be if you saw a lesbian (gay female) couple kissing at school?

- ☐ Extremely bothered
- ☐ Quite bothered
- ☐ Somewhat bothered
- ☐ Slightly bothered
- ☐ Not bothered at all

How strange do you think it would be for a female classmate to compete on the school wrestling team?

- ☐ Very strange
- ☐ Strange
- ☐ Somewhat strange
- ☐ Slightly strange
- ☐ Not strange at all

If a gay male classmate invited you to a party at his house, how willing or unwilling would you be to go?

- ☐ Totally willing
- ☐ Somewhat willing
- ☐ Slightly willing
- ☐ Neither willing nor unwilling
- ☐ Slightly unwilling
- ☐ Somewhat unwilling
- ☐ Totally unwilling

How weird would you think it was if a male classmate wore pink lip gloss at school?

- ☐ Very weird
- ☐ Weird
- ☐ Somewhat weird
- ☐ Slightly weird
- ☐ Not weird at all

How bothered would you be if you saw a gay male couple slow-dancing together at a school dance?

- ☐ Extremely bothered
- ☐ Quite bothered
- ☐ Somewhat bothered
- ☐ Slightly bothered
- ☐ Not bothered at all

How weird would you think it was if a male classmate had no male friends?

- ☐ Very weird
- ☐ Weird
- ☐ Somewhat weird
- ☐ Slightly weird
- ☐ Not weird at all

How comfortable or uncomfortable would you be if a male friend told you he was gay?

- ☐ Totally comfortable
- ☐ Somewhat comfortable
- ☐ Slightly comfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Slightly uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Totally uncomfortable

How strange do you think it would be if a male classmate was captain of the cheerleading squad?

- ☐ Very strange
- ☐ Strange
- ☐ Somewhat strange
- ☐ Slightly strange
- ☐ Not strange at all



**The following NEW questions relate to your experiences over the 2013-2014 school year. Please answer as honestly as possible.**

Were you interviewed during the 2013-2014 school year about your attitudes on homosexuality and gender identity?

- ☐ No
- ☐ Yes, fall semester
- ☐ Yes, spring semester
- ☐ Yes, but I can't remember which semester

Which of the following did you do during the 2013-2014 school year?

- |   |  |
|---|--|
| Attend your school's National Coming Out Day assembly                       | <input type="radio"/> Yes <input type="radio"/> No |
| Participate in the Day of Silence (anti-LGBT bullying and harassment event) | <input type="radio"/> Yes <input type="radio"/> No |
| Attend the Breaking the Silence Coffee House                                | <input type="radio"/> Yes <input type="radio"/> No |
| Read a book or story with a gay, lesbian or bisexual character              | <input type="radio"/> Yes <input type="radio"/> No |
| Watch a movie, TV show or play with a gay, lesbian or bisexual character    | <input type="radio"/> Yes <input type="radio"/> No |
| Talk with your family about gay, lesbian or bisexual people or issues       | <input type="radio"/> Yes <input type="radio"/> No |
| Talk with your friends about gay, lesbian or bisexual people or issues      | <input type="radio"/> Yes <input type="radio"/> No |

How old are you? \_\_\_\_\_

What is your sex?

- ☐ Male
- ☐ Female

A transgender person is someone whose biological sex does not match the way they think or feel about themselves. Are you transgender?

- ☐ No, I am not transgender
- ☐ Yes. I was born female but I think of myself as really a boy or man
- ☐ Yes. I was born male, but I think of myself as really a girl or woman
- ☐ Yes. I was born male or female, but I think of myself in some other way
- ☐ I do not know what this question is asking
- ☐ I do not know if I am transgender

What grade are you in?

- ☐ 9th
- ☐ 10th
- ☐ 11th
- ☐ 12th

What is your race? (Please check ALL that apply.)

- ☐ American Indian or Native American
- ☐ Asian or Asian American
- ☐ Black, African, African American or Caribbean
- ☐ Hispanic or Latino
- ☐ Middle Eastern or Arab
- ☐ Multiracial
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White
- ☐ Other: \_\_\_\_\_

In what country or countries were your parents (or legal guardians) born?

Do people in your home speak a language other than English?

- ☐ Yes
- ☐ No

If yes, how often do the people in your home speak a language other than English?

- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the Time
- ☐ Always

Have you ever been enrolled in English as a Second Language (ESL) classes?

- ☐ Yes
- ☐ No

What most closely describes your religious beliefs? (Please check ALL that apply.)

- ☐ Agnostic/Atheist/No Religion
- ☐ Buddhist
- ☐ Catholic
- ☐ Christian (non-Catholic)
- ☐ Hindu
- ☐ Jewish
- ☐ Muslim
- ☐ Other religion: \_\_\_\_\_

Which of the following best describes you?

- ☐ Straight
- ☐ Gay or lesbian
- ☐ Bisexual
- ☐ Not sure
- ☐ Other: \_\_\_\_\_

Do you have any friends who identify as openly gay, lesbian or bisexual?

- ☐ Yes
- ☐ No

If yes, how many openly gay, lesbian or bisexual friends do you have?

- ☐ One
- ☐ Two
- ☐ Three
- ☐ Four or more

To thank you for your participation, I will be making a donation to your school. Where would you prefer that I make this donation? (Pick ONE.)

- ☐ Friends of CRLS
- ☐ Project 10 East (the gay-straight alliance)

Thank you again for your participation! Please contact me at amm092@mail.harvard.edu if you have any questions. You may also feel free to include comments or questions in the space below.

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